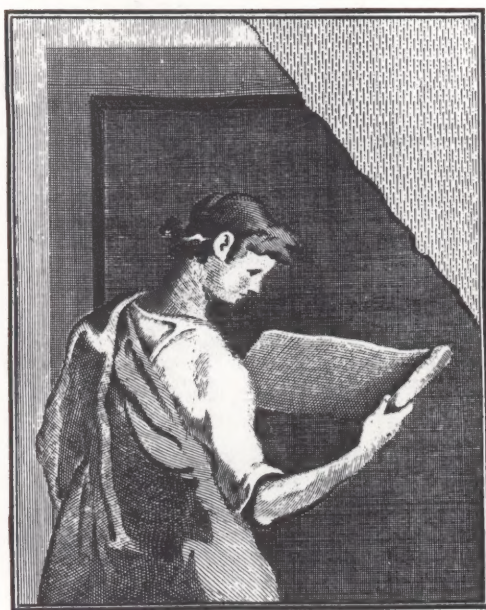


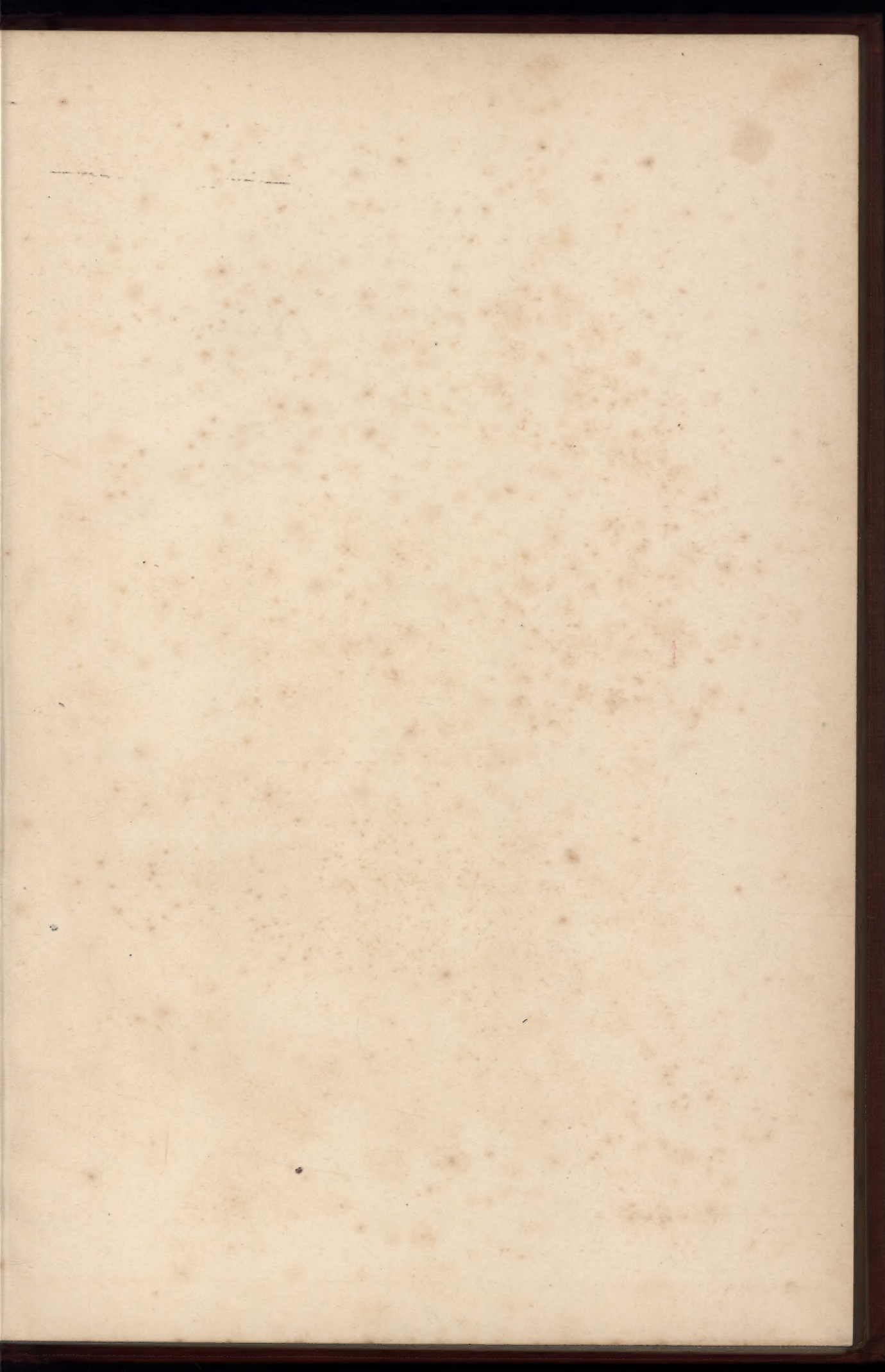
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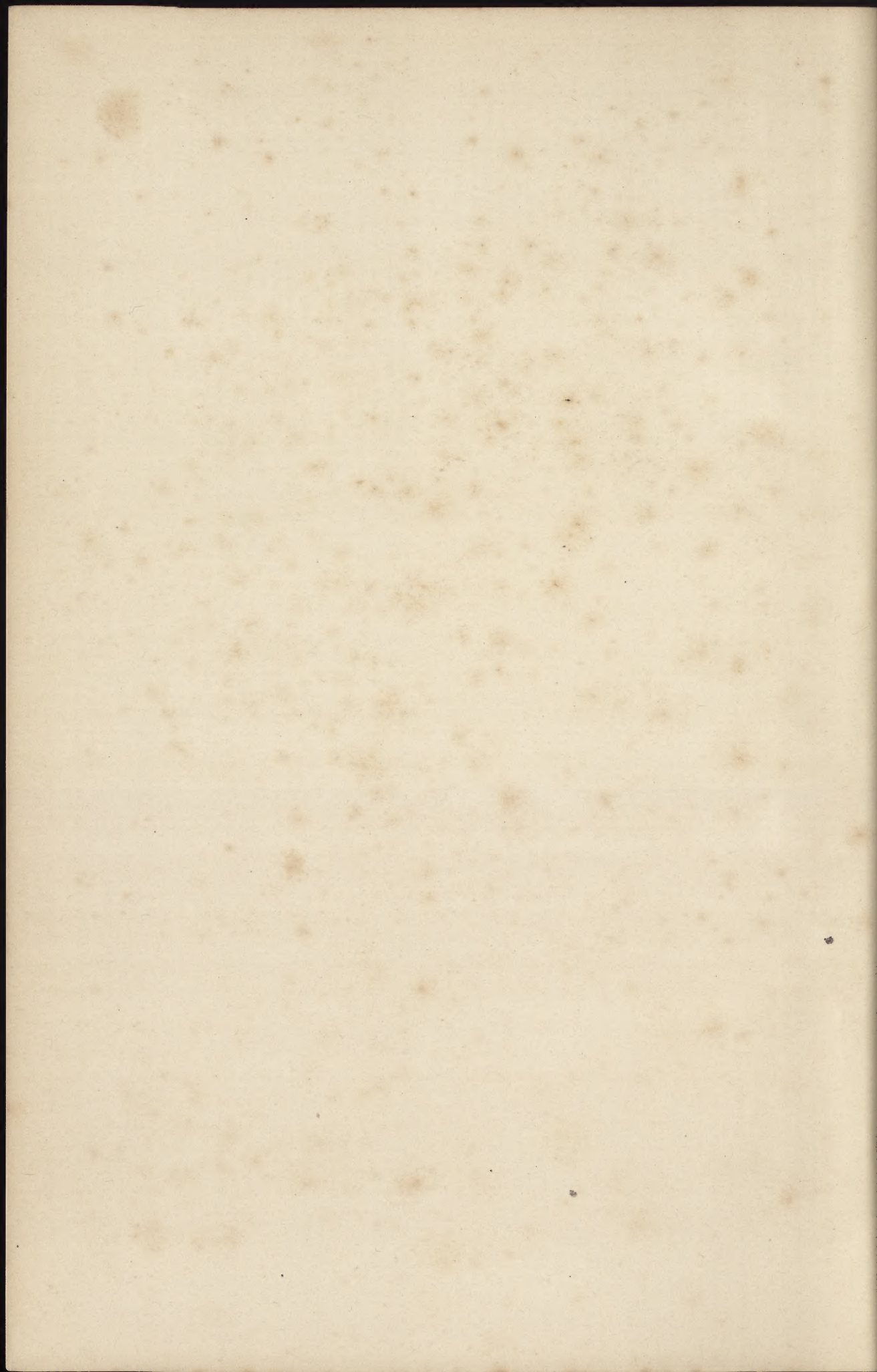


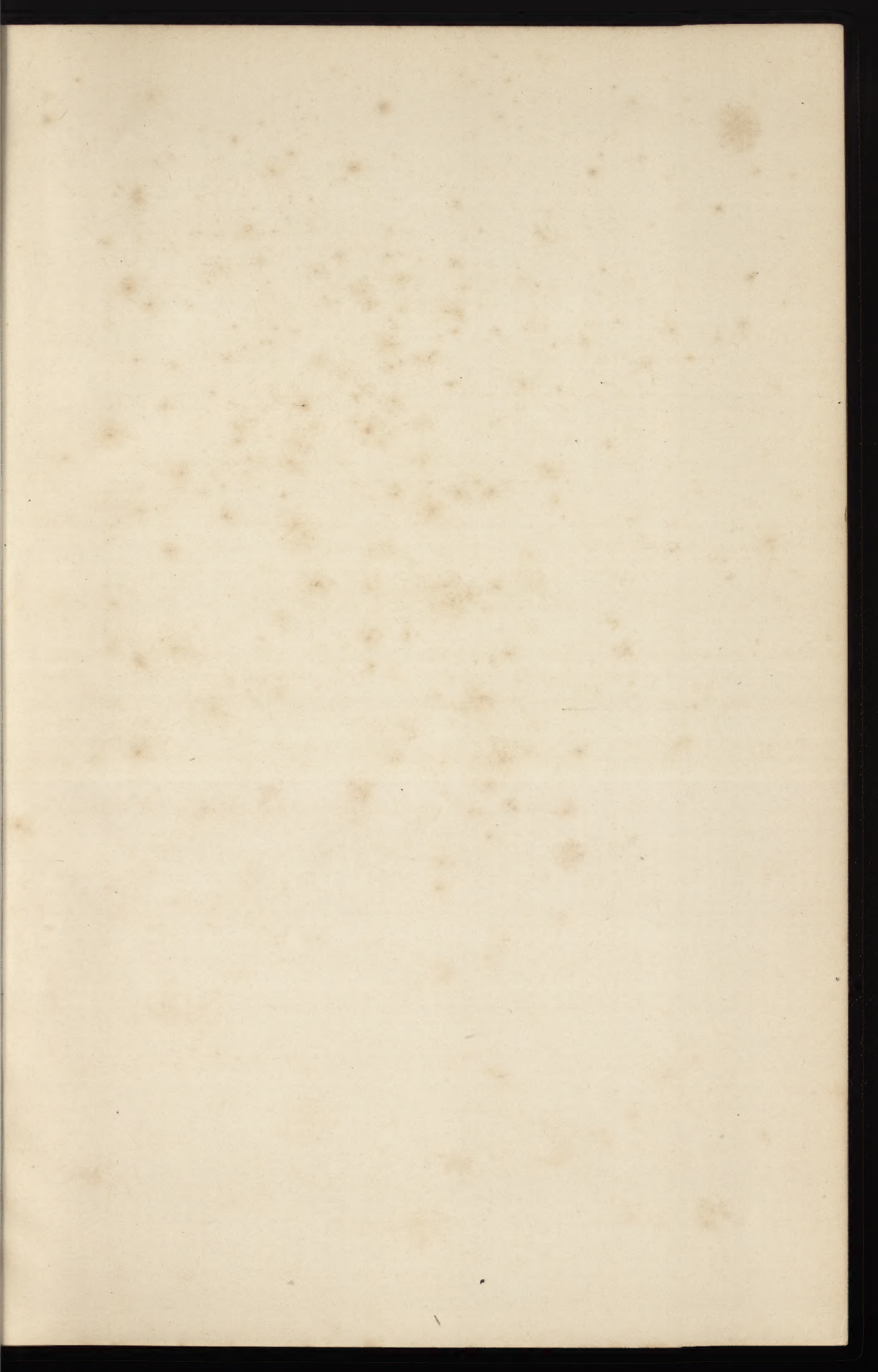
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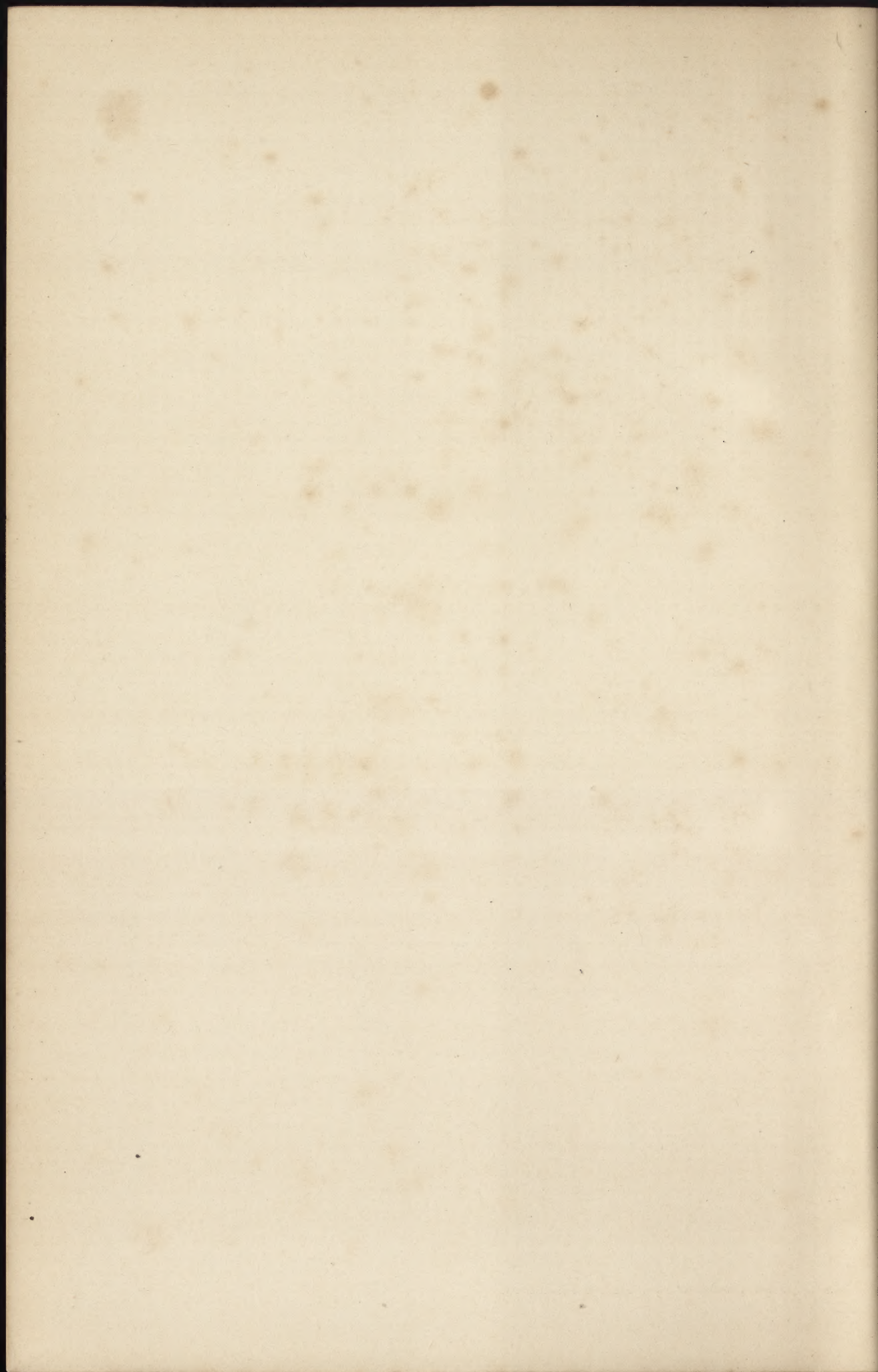


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VOLUME VIII, 1909

PUBLISHED BY

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WASHINGTON, D. C.

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CIRCULAR QUARRY PITS, "SPANISH DIGGINGS," FLAT-TOPPED BUTTE IN CENTER AND GREAT PLAINS BEYOND

RECORDS ^{OF} THE PAST

VOL. VIII



PART I

BI-MONTHLY

JANUARY-FEBRUARY, 1909



THE "SPANISH DIGGINGS," WYOMING

SCIENTIFIC expeditions from the Field Museum of Chicago; the American Museum of Natural History, New York; the University of Nebraska; Yale University and Amherst College have within the past few years studied the vast aboriginal quarry section in Eastern Wyoming locally known as the "Spanish Diggings," because of the belief of ranchmen in the vicinity that none of their Indian neighbors could have accomplished work so vast and the further belief that some of the earlier Spanish explorers had visited the region in search of gold and silver.

There are few states so little known to the outside world to-day as Wyoming. In Europe and the eastern states it is perhaps best known by reason of the fame of Yellowstone Park and as containing immense fossil beds. Mr. Harlan I. Smith, of the American Museum of Natural History, designated the foothills and plains of Wyoming as "darkest archæological America." Mr. Smith has recently returned from his second reconnoissance into Wyoming and has in preparation a detailed report of some of the more remarkable series of picture writings and carvings, aboriginal quarries of ancient age and uncertain origin, as well as Indian forts and cairns, which he examined.

All of the expeditions which have been conducted under personal supervision of eminent anthropologists and geologists have sent to their museums thousands of the quarry blocks and finished stone implements found in the neighborhood of the works. The writer of



QUARRY IN "SPANISH DIGGINGS" SHOWING REFUSE ROCK AND MANNER IN WHICH IT WAS THROWN OUT OF THE PITS

this article has also made large collections and still there are hundreds of thousands of similar implements scattered over the territory for miles in every direction.

The region in which the largest collection of quarries exists is even to-day one of extreme wildness, completely given over to wild range cattle and predatory animals, where the "whir-r-r" of the rattlesnake greets one's ears daily and where few people go for pleasure. There is conclusive evidence that there was a vast population here at the time these quarries were worked. There is no section of the entire world which can show any quarries of such magnitude as the "Spanish Diggings." The great central plains rise steadily from an altitude of about 1,000 ft. at the Missouri river to 5,000 ft. The country has a level prairie aspect with breaks and canyons in the proximity of water courses, with certain regions covered with lofty sand hills and others diversified by slightly buttes and mesas. This great inclined plain is composed essentially of tertiary strata, chiefly the famous bad lands clays and more recent Loup Fork sands. As one travels westward, the mountains seem to rise suddenly and abruptly out of the level plain. Before reaching the mountains proper, folds and uplifts such as the Black Hills and Rawhide Buttes are encountered—they being but eastern extensions of the Rocky Moun-



MAP OF THE "SPANISH DIGGINGS," WYOMING

tains themselves. West of the steep and rugged Rawhide Buttes the aboriginal quarries begin, covering a territory approximately 15 by 40 miles. Here every hillside, where the material would warrant, shows prehistoric quarries; every level spot, crowded stone tipi circles; and every summit, shop sites. Such an array of beautifully-colored quartzites, jaspers, agates and moss agates probably is unknown elsewhere. There is exquisite barbaric splendor in some of the rock colorings, there being every tone, tint and shade to suit a savage

taste; white, gray, lavender, violet, purple, pink, red, vermillion, red and white mottled, striped and banded; light yellow, brilliant yellow, dark yellow, light and dark browns and black. There are no such beautiful quartzites in any other part of this country. In texture they are fine and dense, breaking with deep conchoidal fracture. In addition the quarrymen worked flint, agates and chalcedony of many colors.

How many quarries there are, no one would hazard a guess as they are everywhere for miles. Tons of chips, cores, rejected implements, broken implements and occasionally finished pieces are found around the slopes, upon the eminences and in the canyons. Attempts to approximate the work done, the time it required and the number of persons engaged fail utterly.

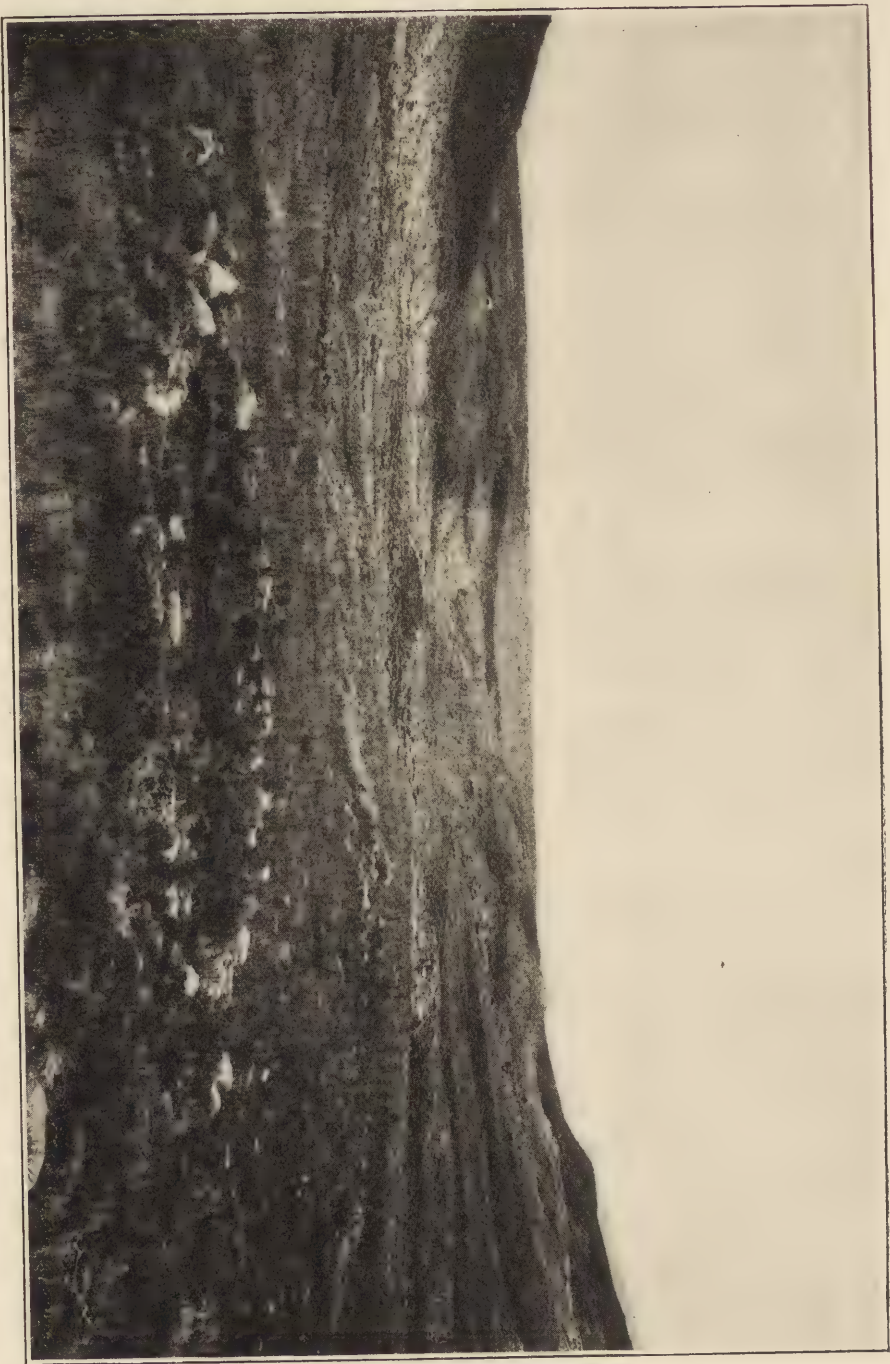
Among the largest quarries are a score located on a remnant 8 miles long that presents an escarpment to the west composed of shale capped with 80 to 100 ft. of sandstones that in many places have passed from sandstone to quartzite of varying qualities and colors. The work surely must have taxed the energy of countless tribes for generations. An adequate conception of the magnificent extent of this work cannot be conveyed by description. It must be surveyed with one's own eyes.

The blocks taken from the quarries were carried to convenient points, where the artisan seated himself on the ground or a rock, as is evidenced by the innumerable piles of chips.

Either the stone implements fashioned at the time were large and crude or they were only roughed out here and were carried away to be dressed into final shape elsewhere. Thousands of great hoe-like implements are to be found on the surface, usually shapely in outline, but crudely chipped and in many cases their size and weight shows them unfinished and precludes the probability of their use as hoes. Whatever they are, their number is so great that several hundred may be gathered from a few acres.

Wedges used in quarrying—ordinarily objects of rarity and interest—are made of granite, an occasional wedge being found in place just where the quarryman left it, possibly thousands of years ago, with head badly battered and broken. They are generally 6 to 8 in. long and triangular in section. Around the quarry pits are grooved mauls of granite, quartz and diorite, all more or less broken by much use.

By far the largest number of implements found are scrapers of jasper, flint and quartzite, varying in size and well made. Next in point of numbers are large leaf-shaped implements 5 or 6 in. wide that might have been intended for agricultural use. One remarks the scarcity of projectile points, but whenever they are found, they are seen to be very well formed.



VILLAGE SITE SHOWING TIFI RINGS, "SPANISH DIGGINGS," WYOMING



GEORGE A. DORSEY QUARRY, "SPANISH DIGGINGS," BANDED RED AND WHITE QUARTZITE. DOCTOR DORSEY,
IN 1900, SECURED FIVE BARRELS OF TYPICAL BLOCKS FOR THE FIELD MUSEUM, CHICAGO



QUARRY BLOCKS, "SPANISH DIGGINGS." GROOVED MAUL IN CENTER IS WHERE IT WAS DROPPED BY THE PRIMITIVE ARTISAN

Tons of cores have been left by the primitive artisan just where he spalled off chips in forming implements. Shallow mortars or metates are frequently met with about the village sites varying in size up to a foot square. A number of double-bladed quartzite axes show skillful workmanship.

About the quarries are thousands of tipi rings from 15 to 20 ft. in diameter made of small boulders and intended to hold down the edges of skin tents all of which opened to the south to admit the warm sunshine, as indicated by gaps in the rings. These rings, placed so close together that there is only room to pass between, are apparently without order in their arrangement.

An explorer's first and most natural question is: Who were the people who performed this titantic task? The tipi rings and extensive quarries evidence a population so dense that the surrounding country for hundreds of miles would not support it and the inference is that habitation was periodic. Agricultural implements in such numbers seem to be out of place in a region whose precipitation is so scant and whose altitude so high, that corn cannot be grown. The nearest point where implements could be used in the cultivation of this

staple is eastern Nebraska, distant at least 500 miles. In the adjacent mountains the primitive tribesmen could, without labor, find unlimited supplies of raw material for the manufacture of stone implements. The people who inhabited the Mississippi and tributary valleys for hundreds or perhaps thousands of years, called for want of a more accurate name, Mound-builders, practiced agriculture and required a large amount of material for stone hoes and spades. The North Platte river, which is close to and parallel with the quarries for a distance of 40 miles, is navigable for small boats or rafts in the spring when the mountain snows are melting. The product of the quarries, consisting mainly of implements in the rough, could easily have been floated down the Platte some 700 miles to the Missouri and then be distributed to all parts of the broad area reached by water.

Many of the larger collections of stone implements found in eastern museums gathered from old village sites east of the Mississippi river contain implements which have been identified as having been made from material brought from the Wyoming quarries.

Who the quarrymen were, may never be known, but the vast work performed has no counterpart on this continent. Investigation of some of the quarry pits shows a depth of more than 30 ft. Strange stone figures of immense proportions representing human beings and thousands of stone cairns are strewn over the landscape for miles. The isolation of this vast field for scientific research, the scarcity of water in the neighborhood and the absence of wood have been the chief causes for its lateness in exploration. It is impossible to go into the country at all without a guide and, as no one lives there, a guide who knows the whole territory is difficult to secure. The best route is by way of the Willow Springs ranch, whose owner, Mr. Thompson Black, has materially assisted many scientific expeditions by locating springs, water holes and the last point at which wood for camp fires can be obtained.

ROBERT F. GILDER.

Omaha, Nebr.



LEGAL AND COMMERCIAL TRANSACTIONS CHIEFLY FROM NIPPUR

TO THE constantly increasing number of volumes, issued by the Department of Archæology of the University of Pennsylvania, Prof. A. T. Clay has added another splendid volume*, which fully sustains the high standard of the preceding ones. Of the 10 volumes of the "Babylonian Expedition of the University of Pennsylvania, Series A," which have thus far made their appearance, Professor Clay has contributed about one-half, namely vols. VIII, X, XIV, XV in full, and vol. IX in part. He has, therefore, had a large share in making the important results of the 4 Babylonian expeditions of his University known to the scientific world.

The latest volume, issued by Professor Clay, contains legal and commercial documents from the Assyrian, Neo-Babylonian and Persian periods. There are 6 kings of the Assyrian period represented by the tablets, beginning with Ashur-bân-apal and ending with Sin-shar-ishkun. Of the Neo-Babylonian kings we find 5, beginning with Nabopolassar and ending with Nabonidus. Of the Persian kings we find 7, beginning with Cyrus and ending with Darius II. The list is closed with Philip of Macedonia. Hence there are not less than 19 kings represented by the 159 texts of the volume.

The tablets, published by Professor Clay in this volume, are taken from 7 different collections. Most of them (115 tablets) were found by the second and third Babylonian expeditions of the University at Nippur. The second series (19 tablets) comes from the E. A. Hoffman collection, preserved in the General Theological Seminary in New York City. Most of these tablets are dated in Borsippa and one (No. 2) in Babylon. A third lot of 10 tablets was taken from the first Khabaza collection (designated Kh), bought for the University Museum in London by the late E. W. Clark on August 15, 1888. Several of these tablets are dated in Babylon, one at least at Kish (No. 113.) But this does not prove conclusively that they were dug up at these places. They may have been stored at some other city.

**Legal and Commercial Transactions dated in the Assyrian, Babylonian and Persian Periods chiefly from Nippur.* By Albert T. Clay, Ph.D., Assistant Professor of Semitic Philology and Archæology, University of Pennsylvania. Volume VIII, Part 1, of *The Babylonian Expedition of the University of Pennsylvania, Series A, Cuneiform Texts*, edited by H. V. Hilprecht, and published by the Department of Archæology, University of Pennsylvania, 1908; pp. 85, pls. 72-IX. \$6.00.



CONVENTIONALIZED THUMB NAIL MARKS

One of the texts mentioned by Professor Clay (Vol. X, No. 1) was dated in Babylon, but was found in the Murashû archives at Nippur. The second Khabaza collection (designated Kh²) is represented by two tablets (Nos. 14, 116), dated at Sippar. The Joseph Shemtob collection (marked J. S.) has contributed 8 tablets, dated at Babylon and Borsippa. Three tablets belong to the J. D. Prince collection (marked J. D. P.), two of which are dated at Babylon. Finally one tablet (No. 141), comes from the Metropolitan Museum of Art, New York City. It is remarkable because it is the only tablet found thus far of the reign of Sin-shum-lishir, one of the last Assyrian kings.

In the introduction to the book Professor Clay discusses some of the interesting questions, raised in connection with the new texts. He calls attention to the oath-formula, which was in use in Nippur in connection with business documents. On tablet No. 58 the oath formula reads as follows: "That they would not alter the tablet to the end of days, they swore by Ellil and NIN-LIL, the gods of their city; they swore by NINIB and Nusku, the guardians of their peace; they swore by Cyrus, king of countries, king of kings, their Lord." This oath-formula, which occurs in Nippur in a similar form as early as the Cassite period (Clay, B. E., Vol. XV, p. 2), unites the chief gods of Nippur together with the reigning king. But the oath-formula does not seem to have been applied in all cases. It is found only on a few of the many tablets given in the book.



ARAMAIC ENDORSEMENTS

Another interesting feature of the tablets published by Professor Clay are the thumbnail marks found on them. They are substitutes for the seal impressions, made by the person upon whom the obligation rested, or by the one who signed a receipt. Professor Clay calls attention to the fact that, because of their peculiar shape and perfect regularity, they could not have been made by a thumbnail, but must be due to an instrument, perhaps the stylus of the scribe. There are usually 9 marks on each of the two edges and 6 on each of the two ends.

There are also a number of very interesting seal impressions on the tablets. As the scenes represented on them are usually religious, giving the various emblems of the Babylonian gods, they are of great importance to the student of Babylonian religion. It is certainly to be hoped that the large collection of seal cylinders, which the Museum of the University possesses, may be made accessible to students by their publication in the not too distant future. In order to put the subject upon a scientific basis it would be very desirable to know first of all the seals on all the dated documents. They would furnish a safe criterion for the undated seal cylinders.

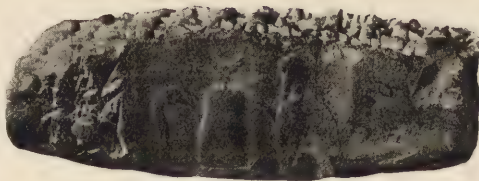
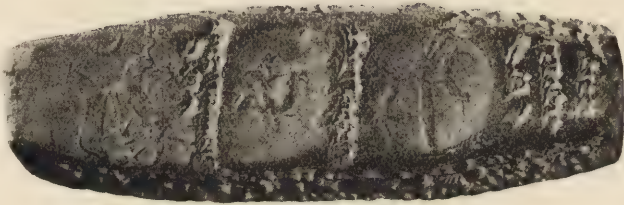
In connection with the thumbnail marks and the seal impressions we may mention the Aramaic endorsements, found on 15 of the tablets.

They have been deciphered as far as possible by Professor Clay with his well known ability. They usually contain the name of the person or persons on whom the obligation, mentioned on the tablet, rested. They were put on the tablet with ink or were incised by a sharp instrument for the purpose of easy identification and ready reference. They testify to the growing importance of the Aramaic language in Babylonia during the Neo-Babylonian and Persian empires. They are valuable (as Professor Clay has strikingly shown in his contribution to the Memorial Volume of Dr. Wm. R. Harper), because they give us the pronunciation of a number of important cuneiform ideograms, thus far unknown, and make us also acquainted with some new Aramaic words.

The most valuable part of the introduction is Professor Clay's discussion of the historical information which the contract-tablets give about the length of the reigns of the various kings, under whom they were drawn up. By giving a full list of the first and last dates of the reigns of the Assyrian, Babylonian and Persian kings, as found on the contract tablets, Professor Clay shows that they enable us to determine their length more accurately than was hitherto possible.

Especially welcome is the new light which is thus thrown on the relations of Ashur-bân-apal and Kandalânu. It was hitherto supposed by all scholars, with the exception of Professors Sayce and Opert, that Ashur-bân-apal and Kandalânu were identical, and that the latter was the name which Ashur-bân-apal assumed when he became king of Babylonia, in a similar way as Tiglathpileser was known as Pûlu in Babylonia. Professor Clay, however, shows that this assumption of their identity is not borne out by the evidence at hand. It is much more likely that Kandalânu was a relative, perhaps brother or half-brother of Ashur-bân-apal, whom he appointed as viceroy of Babylonia. In connection with this question Professor Clay calls attention to the first tablet, published by him in the new volume. It is dated at Nippur in the twenty-sixth year of the reign of Ashur-bân-apal. Of this date he says: "If it were true that he (Ashur-bân-apal) had assumed the name Kandalânu in Babylon, and in every instance, as far as we know up to the present, the ruler was known by this name in that neighborhood, it seems unreasonable to suppose that at Nippur, not more than 50 miles distant, he should be known by his real name 6 years after the death of Shamash-shum-ukîn and his own enthronement in that city." In view of the facts presented by him, Professor Clay comes to the conclusion that "it seems reasonably certain, that the opposition raised more than a score of year ago by Professor Sayce, the only living representative of this view, as far as I can ascertain, is sustained, namely that Ashur-bân-apal and Kandalânu are not identified."

As all his other books, belonging to this series, so also this volume has been provided by Professor Clay with a complete concordance



SEAL IMPRESSIONS ON THE FOUR EDGES OF A
TABLET OF THE TIME OF DARIUS I

of all the proper names of persons, gates, canals, places and deities, occurring in the inscriptions. They contain important material for the student of Babylonian name-formation, geography and religion.

The 159 texts, presented in the volume, are copied with the well known skill and accuracy of the author. They are faithful reproductions of the originals, exhibiting the exact condition of the tablets with such precision that they may be said to equal, if not to surpass, the best work that has been produced in the copying of cuneiform texts.

The following translations, taken from Professor Clay's introduction, with slight changes, illustrate the variety of business transactions, recorded by the tablets.

I. SALES. The tablets record a number of sales of houses and lands. The following is the record of the sale of a storehouse, belonging to the temple Ezida in Borsippa.

"A 12 reed storehouse, a finished house (having) a built in threshold, a covered house (with) a door (having) a firm bolt, belonging to the bright storehouse of *Ezida*; on the upper north side adjoining the storehouse of Bêl-êpush, son of Aplâ, son of Mubanni; on the lower south side adjoining the storehouse of Etillu, son of Marduk-abishu; on the upper west side along the Tarrabshu road; on the lower east side adjoining the storehouse of Nabû-iddina, son of Arkât-Damqu. Total, 12 reeds is the measurement of that storehouse.

"With Bêl-uballit, son of Amelai, the *riqqu* officer of Marduk, Marduk-kudurri-usur, son of Irâni-Marduk, the *TU* officer of the temple of Marduk, the sum of 3 minas, 10 shekels of silver for the half of the field, 15 shekels, and 2 gerahs of silver and 5 kors of dates, which were given as earnest money, fixed as its full price. Total 3 minas, 10 shekels of silver and 5 kors of dates, the full price of his storehouse Bêl-uballit, son of Aplâ, the *riqqu* officer of Marduk, received from Marduk-kudurri-usur, son of Irâni-Marduk, the *TU* officer of the temple of Marduk. It has been paid, he is freed. There shall be no reclamation. They shall not reverse it (the bargain), against each other they shall not raise a claim. Whenever in future days any one of the brothers, sons, family, people and relatives of the house of Bêl-uballit, son of Amelai, shall arise and start a suit against that storehouse, or cause a suit to be made to annul or set up a claim, saying: 'That storehouse was not sold and the money was not paid;' the money which he received, including a (fine of) 20 per cent. he shall pay."

At the sealing of the tablet 9 witnesses and the scribe were present.

II. LEASES. The following is the lease of a house for two years with part payment in advance.

Obverse



Reverse



INVENTORY OF THE TEMPLE ASSETS FOR THE 40TH YEAR OF ARTAXERXES I

"The house of Sillu-Ezida, son of Nabû-shûzûbanni, son of Shita, * * * and Bu'itum the *riqqu* officer, for rent is at the disposal of Nidintum, son of Bazûzu, son of the chief goatherd. For two years Nidintum shall pay 4 shekels of pure silver as house rent. Of it 2 shekels of pure silver Bu'itum has received from Nidintum. One (document) they take." (Then follow the names of 5 witnesses and of the scribe and finally the date.)

"From the first day of Nisan the house is for two years at the disposal of Nidintum. Yearly (he shall pay 2) shekels of silver."

III. EJECTMENT. An action taken to recover possession of a house.

"Nabû-zêr-ibni, the *sakzâku* officer, Shamash-mukîn-ahu, the chief royal *rab kâri*, Mushêzib-Nabû, the chief royal *rab ummannu*, Bânia, son of Ina-bîti-Ea-kittu; these are the witnesses before whom Gula-shum-lîshir, the *shandamak* officer, Marduk-shar-usur, son of Mushêzib, son of Sin-shadûnu and Anum-shar-usur, the governor of Nippur, brought Shullumu son of Tabnêa, with Bau-iqîsha, son of Usâtu, before Itti-Ellil-balâtu, son of Usâtu. The house of Bau-iqîsha in which thou art dwelling, return and give to Bau-iqîsha. Out of it go! On the 30th day of Elul of the 2d year of Nabû-na'id, king of Babylon.

IV. RECORDS OF DEBTS. Loans of money on good security were common. The following is a record of a debt of dates, for the payment and delivery of which another becomes responsible.

"Three kors of dates, valued at two shekels of silver, due to Shamash-ah-iddina, son of Tabnêa, due from Ibni, son of Rimût. On the 7th day of Tishri, in the *hazata* of Bêl-ab-usur, he shall pay the dates. Zêr-ukîn, son of Pir', bears the responsibility for the repayment. The dates Zêr-ukîn shall carry from Shiriqtum and give to Shamash-ah-iddina."

The names of 3 witnesses, the name of the scribe and the date follow.

In the following record a slave girl is given as security for the payment of a debt.

"Fifteen shekels of silver, in $\frac{1}{2}$ shekel pieces, due to Izzianna, son of Ahu-tâbu from Nergal-iddina, son of Ahu-lûmur. Shininni-Bau, his young female slave is the security for the silver due to Izzianna. When Nergal-iddina shall pay his money he shall take his female slave. There shall be no rent for the slave and there shall be no interest on the money."

The names of two witnesses besides that of the scribe follow, also an Aramaic endorsement, reading "Nergal-iddina."

V. MEMORANDUM OF PAYMENTS. The following is a memorandum of payments made by the chief of the temple tithes at Nippur.

"Four shekels of silver in the month of Tishri, in the presence of Kurila (son) of Nabû-uballit; a fourth (of a shekel) of silver, in the

presence of Nabû-uballit; 3 shekels of silver, in the presence of Ninib-erba; 2 shekels of silver to Ardi-Gula, in the presence of Taqîshu, son of the carpenter, and of NINIB-erba; 9 kors of barley from the hand of Marânu, the chief of the tithes of Ellil, Bêl-zêr-iddina received from the hand of Murânu, a memorandum which is not forgotten. Total, 18 shekels of silver."

VI. RECEIPT OF TAXES. The following is a receipt of taxes paid by one person for another.

"Three shekels of silver, the tax for the first year of Barzia, king of Babylon and of countries, which is from the month of Elul of the first year unto the month of Elul of the second year. The tax of Mitia son of Mushêzib, Shamash-erba, son of NINIB-ah-iddina, has received from the hand of Ardi-Gula, son of Shamash-iqîsha."

The names of two witnesses, of the scribe and the date follow.

VII. PROMISSORY NOTE. The following note, bearing interest at 20 per cent., includes also an additional security.

"One mina 5 shekels of silver (due to) Nabû-mukîn-zêr, son of Iddina, son of Gahul, to be paid by Nabû-tabni-usur, son of Aplâ, son of Gahal. Monthly one mina shall bear one shekel of silver as interest. In addition the former document regarding a seedfield on the Kish-road, which he shares with his brothers (is held) as security of Nabû-mukîn-zêr against it. He shall pay in full the money, as much as is against him."

The names of 4 witnesses, of the scribe and the date follow.

VIII. TRANSFER OF OFFICE. The following is an agreement to turn over the income of a temple office to another for one day, after which it is permanently assigned to the man's son.

"For one day, the 27th day of Elul, the income of the office of shepherd of Ezida, the temple of Nabû, Nidintum-Nabû, son of Rîmût-Gula, son of the oxherd, his income, of his own free will, sealed and for a day entrusted to Nabû-mukîn-zêr, son of Alpâ, son of the oxherd. After the 28th day of Elul, Nidintum-Nabû entrusted it to Rîmût-Nabû, son of Nabû-mukîn-zêr forever and * * * "

The names of 3 witnesses, of the scribe and the date follow.

WILLIAM J. HINKE.

Auburn, N. Y.





AN OUTPOST OF CIVILIZATION IN

RECENTLY DISCOVERED CLIFF-DWELLINGS OF THE SIERRAS MADRES

THOSE races of men that have emerged from the darkness of the unknown to sweep across the history of the world with the effulgence of a meteor, and then to disappear as suddenly and as mysteriously as they came, leaving behind them only a train of ruins to show their former state—have always been of peculiar interest to mankind.

No part of the world contains more striking examples of this type than America, and no people possess a greater amount of human interest, or experienced a more mysterious existence and fate than the Cliff-dwellers of this continent. Their ruins alone, scattered always among the most inaccessible cliffs and canyons of the Rockies from Colorado and Utah far into the Sierras of Mexico, make a mute appeal to our sympathies for their builders. Driven to seek safety in the innermost recesses of the mountains, they lived their lives, how we can but guess, and went none know whither.

The writer has recently had the good fortune to complete the exploration of a previously unexplored group of ruins of these people in a valley hidden far in the fastness of the Sierras Madres of Mexico. In fact, so remote and inaccessible is the surrounding country that but little surprise can be experienced that the remains which were the object of this expedition were first discovered from a distant mountain peak by our guide, Mr. J. H. Hughes, but 3 months before our visit.



THE FOOTHILLS OF THE SIERRAS

and that up to that time the valley in which they are situated had not known the tread of a white man's foot.*

It was the news of this discovery that lured the writer and his companion, Mr. A. R. Coleman, across the valley of the Casas Grandes, where the remarkable ruins of that name are located; miles up the Tenaja, between high red cliffs; over the pine covered mountain ridge to the Rio San Pedro with its remains of picturesquely located villages of by-gone days, its triple series of rock walls looking down upon the narrowest pass; on past its headwaters and over the continental divide; through the tangled mass of the Sonoran Sierras, sometimes upon the almost perpendicular mountain side, again far down in the silent canyons until at last, half leading, half dragging the unwilling horses we slid down the sides of the Cerro Diablo into the depths of the long-sought canyon. However, while crossing the bald rocks on the mountain summit, one member of the party sustained serious injuries from a falling horse, and another barely escaped a similar fate by an acrobatic display of agility in rolling from under the striking hoofs of another fallen animal. Here also five of the pack burros were on their sides at one time, as even these sure-footed little animals were unable to keep their footing. Indeed so perilous were the precipitous sides of this mountain that at first glance it seemed a physical impossibility for the animals to descend at all, and this they only consented to do when

*Many of the hardships of the expedition were greatly mitigated by the courtesy and assistance of Mr. Mell Womer—a large land owner of Casas Grandes—and Mr. McTavish—the latter of whom accompanied the party—and further by the hospitality of the officials of the Dos Cabazos mine—to all of whom the writer desires to acknowledge his indebtedness.



VIEW FROM CLIFF-DWELLINGS

forcibly hauled, slipping and sliding in zigzag paths down the hazardous declivities. Thus it was that the writer felt but slight compunction in attaching to it the name of the Cerro Diablo, or mountain of the Devil.

Picking our way up the canyon bed we passed the bones of a horse the guide had left here on his former trip, the animal having been killed and eaten by the mountain lions, "tigres," wolves and bears, signs of which were abundant about the remains, and camped as near the main cliff-dwellings as possible on the bank of a crystal stream, one of the headwaters of the Basserac, which in turn flows into the Bavispe. So deep is the canyon and so high the surrounding peaks at this point that the sun rose about eleven o'clock and set a few minutes after one. Indeed one of the party shot two deer far up the mountain side, both of which rolled within 20 ft. of where he was standing. The wild animals in this section are most

numerous and of very formidable species, and seemed, through unfamiliarity with man, to entertain an appalling disregard of the proper etiquette pertaining to their position as the hunted. In one case a bear and a mountain lion nearly succeeded in reversing the positions, and in themselves assuming the role of hunters.

In the immediate vicinity of the camp there were no remains except a number of small trincheras, or terraces with retaining walls, and one stone wall about $2\frac{1}{2}$ ft. high, that ran parallel with the stream, and that probably also came under the latter classification.

The worst portion of the journey, however, lay ahead, for from this, the nearest accessible camping place, the cliff ruins were nearly half a day's climb over masses of loose stone which afforded but precarious footing at best, along great cliffs with dizzy heights, and



IN THE CLIFF-DWELLERS' COUNTRY

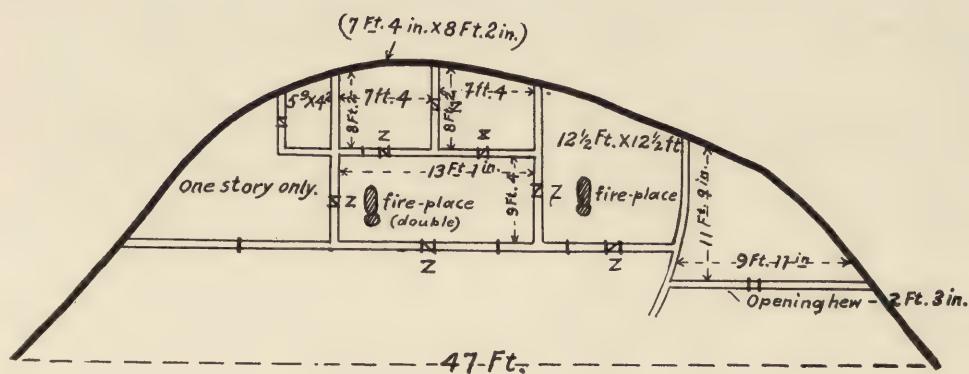
across the face of bold projecting rocks where only with body prostrate and eyes averted from the abyss below was the trip possible. Burros or horses were of course out of the question here, for as one of the old Mexican laborers sagely remarked, it was a country, "good but for bears, eagles and men." Tools for excavating were carried with the greatest difficulty; frequently they were placed ahead on a secure ledge, and then freed from their weight, the bearer grasping a tuft of grass or blade of cactus, would slowly draw himself up to them. Finally, scrambling literally upon hands and knees, the main ruins were reached.

These are situated in a large cave in a high dike of red porphyry which bisects the country in a northeasterly by southwesterly direction on the western face of a mountain, grand in its sweeping majesty, that forms a portion of the backbone of the continent as along its distant sky line runs the continental divide. This mountain the writer named, "La Madre Bonita," and estimated its altitude at about 10,000 ft. above the sea. The formation here is extremely favorable to the existence of caverns through erosive processes, and exhibits in many places a strongly marked and highly mineralized contact with the country rock.

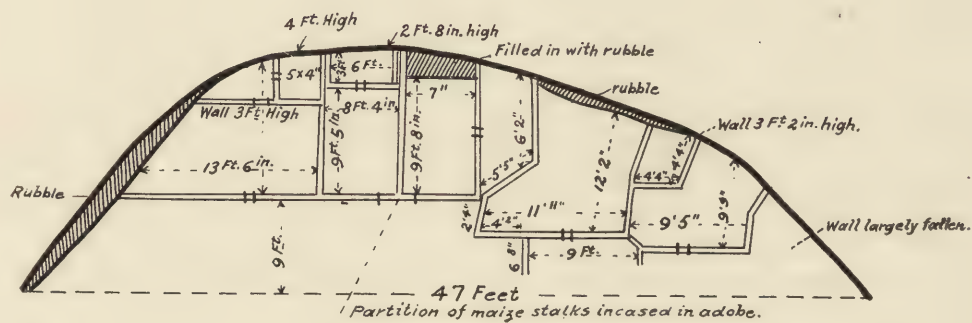
At the point where the main cliff-dwellings are located, the dike is cut asunder by the waters of Cliff Canyon, and forms two towering red portals to the upper portion of the gorge. Its precipitous sides are studded in many places with small caves which do not generally seem to have been utilized as dwellings, owing principally to their comparatively small size and to the formation of their bottoms which like the generality of creation in this country stand on end. However, two nearly inaccessible ones across the canyon while containing no apparent remains of walls were probably at one time inhabited.

In this section, as in Cave Valley in Chihuahua and many of the ruins in the United States, the proximity of the pueblo remains to those of the cliff-dwellings is striking. Here indeed, if coexistent, the same agricultural plots must have been tilled in common by the inhabitants of both, while the texture, make and design of the pottery is similar, and the wide-spread resemblance of the salient structural and architectural features of the buildings is strongly marked. There is little doubt that both these types of ruins belong to the same people, and though they built in caves when practicable, a great number were forced to erect pueblos or communal dwellings on the almost equally isolated and impregnable steps in the sheer mountain side or, as in one case hereabouts, upon the summit of an outlying spur, the valley bottoms affording hardly room enough alone for the streams that coursed through them. Owing to the lack of shelter which their situations entailed, but little is left above ground of the pueblo remains in this section. In spite of the apparent disadvantages the prehistoric population was large.

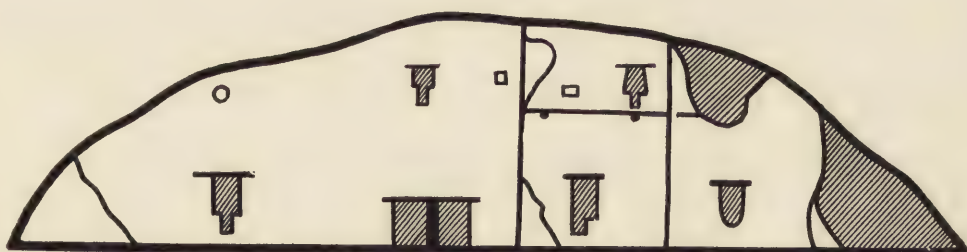
The principal cave is 47 ft. wide across the mouth, about 27 ft. deep and 11 ft. high, containing 16 or more rooms or "houses," the front ones being in a poor state of preservation and the wall lines hard to determine, though they were probably of but one story in height, the back ones being of two stories and well preserved. These buildings reach from the bottom to the top of the cave. The material of which they are constructed is an exceedingly hard adobe of dark-reddish color, probably made from the dust formed by the disintegrated portions of the cliff itself. The walls as a rule vary from 10 to 12 inches in thickness and contain the grain-shaped doors and circular openings common to this class of buildings. The doors were thus constructed—large in the upper halves and small in the lower—to admit a person with a maximum load but a minimum amount of cold air. This form also had strong defensive advantages. Two coats of plaster are clearly discernable, both greatly soiled and covered with smoke, while on the outer walls of the lower rooms, a faint design in black and red is barely visible. Its lines however seem to follow slightly those of the rain-cloud symbol, and are of a totally different type from the comparatively recent Apache decorations on the walls of the cliff-dwellings



UPPER STORY



LOWER STORY



VERTICAL PROJECTION

PLAN OF CLIFF-DWELLINGS IN MAIN CAVE

II, Doors. I, Circular Openings. Z, Sealed Doors. X, Partially Sealed Doors. Shaded portions of the vertical projection, are openings, and the curved lines generally represent crumbling adobe walls.

to the East in the Sierras of Chihuahua. This was the only pictograph noticed, not only in this cave but in the entire region, the literary or artistic talent, whichever it might have been, of the ancient inhabitants having evidently been exhausted with this one masterpiece.

The following illustrations clearly show the plan and dimensions of the rooms or "houses," and at the same time strongly impress upon one the fact that the dwellers therein were not of great size. Sturdy, however, they must have been to have carried the water requisite for making the heavy adobe over breakneck paths from the canyon bottom, and to build the many stone walls on the precipitous mountain side.

Heavy pine and juniper beams hacked into shape with rough stone axes were used as the base of the floor of the second story, over these maize stalks were thickly laid and in some cases small boughs; this was in turn covered with adobe and made a strong and solid support. In the center of two of the upper rooms raised ovals of dried mud, constituted rude fireplaces. One of these was double, consisting of two hollow rings, one large and one small.

The marks of what threatened at one time far back in the centuries to become a serious tragedy were here clearly evident, for the adobe had worn thin in places and the maize stalks and wooden beams beneath had become ignited. Fortunately the flames were discovered and extinguished before they had made much headway, and the damage was then carefully repaired.

Small sticks arranged in single rows still remain firmly embedded in the walls of the back rooms of the second story, and doubtless in days gone by, supported articles belonging to the domestic department of the cliff people. In one of these rooms was also found a peculiarly shaped stone implement about 5 in. long and slightly curved with a short rubbing surface at the bottom of the curve. This was probably used in the curing of skins.

Small circular openings on the sides of the doors admitted light and air in limited quantities when the door itself was closed, and probably at times also served as loopholes. The back rooms on the lower floor were of a very restricted nature, owing to the cave formation, and could have been used for nothing but store rooms or pens as the cliff-men doubtless often kept wild turkeys in captivity. In one of the front rooms a corner had been walled off by means of a low partition about 3 ft. high. Just what was stored here, it is impossible to state though maize was probably the product. The accompanying illustration not only shows this enclosure but also the size of the upright posts and horizontal beams and the manner in which they were joined with a casing of adobe. In the same room was unearthed an olla or water jar of the lower undecorated type, but no human



CLIFF-RUINS

La Madre Bonita Showing Canyon in Which Are Located the
Main Cliff-ruins

Portion of Retaining Wall of Plaza

Small Level Spot on Top of Cliff Used by Cliff-dwellers for
Agricultural Purposes. Marked by Series of Trincheras

Mouth of Cave Showing Portions of Walls, Stone Metates, Maize
Stalks, and Ancient Ladder Pole



PORTION OF FRONT OF CLIFF-DWELLING SHOWING TWO STORIES, LADDER POLE, GRAIN-SHAPED DOOR AND SMALL OPENING OR WINDOW TO THE LEFT OF UPPER DOOR

remains were encountered. A small shelf about 12 in. long by 6 wide, neatly moulded in the adobe wall was also noted in this section of the ruins.

The back of most of the lower rooms was squared off with a wall of stone, beyond which was nothing but rubble, although in the dust behind a wall of this nature, which stood along the side and towards the front of the cave, was found a toy dish of grey ware, a spindle whorl of gourd and a number of similar objects, besides some intrusive bones of small animals. In another corner under the floor, a sandal of yucca fibre was unearthed, of a size that probably belonged to a small child, some remains of pretty basketry with a fringe along its upper end was also discovered here. In the same place were a number of stone objects.

In front of the cave extends a plaza 124 ft. long and averaging 20 ft. in width. It is faced and held in position on the mountain side largely by means of a stone wall, portions of which still stand, and on the summit of

which was reared a parapet now almost totally destroyed by the wash from above. The trail from the stream in the bottom of the canyon ran along a portion of the retaining wall and entered the plaza at one end in a narrow cleft between two masses of rock. Most of this open space is covered with brush and several fairly large trees are growing upon it; to the back is the cave and the red porphyry dike, while in front spreads a view of massive peaks, great walls and pinacles of rock, and deep canyons with the silver threads of water in their depths. Almost immediately opposite, a great mountain unnamed from the Beginning, but now christened, "Las Tres Muchachitas," rears its 3 crests far into the sky.

Upon this dizzy shelf the departed cliff-dwellers probably congregated while mending their weapons, making their pottery, weaving



YUCCA PALM FROM WHICH CLIFF-MAN MADE SANDALS AND WHICH
HE USED IN MANY OTHER WAYS



VIEW ALONG FRONT OF CLIFF-RUIN SHOWING REMAINS OF ADOBE WALLS
AND LADDER POLES



GLIMPSE OF CLIFF-RUINS FROM PLAZA

their baskets and engaging in the few other domestic arts practiced among a barbarous people. It is a plaza which has a charm and individuality peculiarly its own so thoroughly does it seem associated with the past life and activity of this section.

Throughout the region there were no signs of violence, probably due to the very inaccessibility of the country itself, as a peaceful visit alone among this wilderness of jumbled peaks and precipitous mountains would satisfy the ambition of the most warlike. There were no signs of the abandonment of a large store of maize, nor were the ruins swept clear of all the implements; no charred beams were found nor skeletons lying upon the floors under a mass of crumbling adobe as is the case in many of the ruins of the more accessible country to the east.

Here was no tragedy but rather a peaceful migration to some other country; indeed it may be that in this section dwelt those very tribes against whom the inhabitants of the eastern country attempted to guard with their outposts and fortified passes, all facing the west, but who eventually swept aside all barriers and left a trail of ruin and desolation apparent even at the present day.

How long these remains have basked drowsily through the ages in the warm Sonoran sunlight it is hard to tell; an air of great quiet and grand isolation hung over this unknown valley. Everything was just as the hands of the long dead cliff-men had left it. Many of the doors were sealed and had to be forced open before an entrance could be effected; great stone metates lay scattered around where last the maize had been ground in them, with the stone crushers or "manos" nearby; in one case a metate had been turned on end to act as a step between a lower and an upper room; the ashes of the long extinguished fires still lay in the fireplaces, the glowing embers of which were probably the last signs of life in these deserted habitations.



LOWER ROOM OF CLIFF-DWELLING SHOWING HORIZONTAL BEAMS SUPPORTING UPPER STORY, UPRIGHT POST WITH CASING OF ADOBE AT JOINT AND SMALL PEN IN CORNER OF THE ROOM

Here and there was found a stone implement or a weapon considered not worth the saving or overlooked at the last moment; pieces of matting lay in a corner as they were left, while ladder poles, 13 ft. long and notched about 4 in. from the end, probably as a means of securing them with a thong, lay near the places where they had been last set. Even portions of the yucca or a similar plant which had been well chewed and which was probably the ancient substitute for our modern gum, were found on the floor with the teeth marks centuries old still in them. One almost expected to see footprints in the dust or to disturb a slumbering cliff-man far back in one of the small dark rooms. The walls and ceilings were black with smoke and time. Innumerable flies sleeping their lives away in the darkness were aroused to life by the candles, and so long had they and their forebears lived here that the beams were encrusted with their marks.

The dust that had known no moisture for hundreds of years arose in suffocating clouds under the stroke of the pick and shovel, and several of the men, hardly recognizable, were driven staggering out into the open air. However, by means of handkerchiefs tied over the mouth and nose, the work went steadily on, but though a number of culture symbols were unearthed no human remains were found in any of the buildings—another sign of their peaceful occupation, for the writer has long believed that interments in the houses were practiced in this section only when necessity, such as siege or the immediate presence of an enemy, rendered it imperative.

Thus have these people vanished as they came—in mystery, leaving as the sole result of their existence, of their teeming numbers.

great activity and ambitions, but crumbling ruins in the deserted mountain sides, numbers of trincheras, retaining walls and here and there a bright piece of broken pottery that peeps through the grass by some ancient mound.

The Tarahuamaries to the south live in caves during a portion of the year and their skulls in type resemble some that have been found in the cliff ruins, but at present it seems impossible to connect them definitely by other means stronger than fancy with the races that have gone before.

The secret of the Past lies deep within the bosom of the centuries. Through all these long years it has been jealously guarded, held for him, who some day delving among the time-worn ruins, shall discover the open sesame—the link that binds the unknown to the known—perchance a colored potsherd with symbols of long dead races, perhaps but a series of cumulative facts. Already a portion of the chain has been forged beneath the great frowning peaks of the Sierras with the silent dwellings themselves as witnesses, and already the cultural influence of the contact between these races and the highly civilized builders of the great ruins to the east in the Casas Grandes and adjacent valleys seems strongly marked.

That this contact was peaceful we might well hope, but all indications—and they are many—point to the conclusion that the link for which we are still searching will lead through long years of bloodshed and destruction when the primitive passions were fanned into a flame that eventually culminated in the annihilation of not the ruder mountain tribes, but of an apparently waning yet certainly most wonderful civilization far back in the misty ages of the Past.

A. HOOTON BLACKISTON.

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SKELETAL REMAINS OF CLIFF-DWELLER AND CASAS GRANDIAN TYPES

Blackiston Collection in National Museum

PENCK ON THE ANTIQUITY OF MAN

THE sixth annual course of Silliman lectures was given in Peabody Museum of Yale University, from October 13 to November 2. Dr. Albrecht Penck, Professor of Geography at the University of Berlin, being the lecturer. His subject was: "Problems of Glacial Geology." Among the topics treated were: Forms of glaciation and their geographic distribution; snow-line and timber-line; glacial rivers and lakes; various forms of moraines and origin of morainic material; climate of the Ice Age; glacial systems; interglacial times; glacial earth sculpture; chronology of the Great Ice Age, and the antiquity of man.

According to Penck the Great Ice Age consisted of 4 glacial epochs (and the alternating interglacial epochs). These have been named after 4 streams of southern Germany in the foot-hills of the Alps: Günz, Mindel, Riss and Würm glacial epochs, respectively, beginning with the oldest. Penck has also been able to determine 3 well-defined stages in the final retreat of the Würm glaciation. They correspond to temporary advances during the general period of retreat. Such stages have left their traces so distinctly in the region about Innsbruck that local names have been applied to them: Bühl, from Kirchbühl at an elevation of 500 meters; Gschnitz at 1,200 meters and Daun at 1,600 meters, the latter, of course, being the most recent.

The barbaric races with whom the Romans had to contend had a knowledge of iron. It is estimated that the Bronze Age had its beginning some 3,500 years ago. The Alps were then either inhabited or visited throughout their extent by man. We find, for example, bronze weapons in the Flüela pass of the Upper Engadine. The Flüela pass was invaded by ice of the Daun stage. The latter, therefore, antedates the Bronze Age. Prehistoric copper mines have been discovered at two localities in the Austrian Alps. One of these lies at the south foot of the Übergossene Alp near Salzburg at a height of 1,500 meters. Neolithic implements were found in the old shafts. Now this locality (Mitterberg) is near the timber-line and a slight depression of this would render it difficult to establish smelters there. The other copper mine is southeast of Kitzbühel in the Tyrol at a height of 1,900 meters. This mine also must have been occupied later than the Daun stage, at which time the region lay very near the snow-line and was uninhabitable.

Even the whole neolithic period in Switzerland is younger than the Daun stage whose snow-line lay 300 meters lower than to-day. The minimum time therefore that separates us from the Daun stage must be at least 7,000 years.

A very long interval of time separates us from the closing epoch (Magdalenian) of the palæolithic period. For we find on the borders of Lakes Constance and Geneva animal remains of the Magdalenian epoch in terraces that are 20 to 30 meters above the present level of these lakes. Magdalenian industry is found in Switzerland well within the area covered by the Würm glaciation. But such stations have not yet been found within that covered by the Bühl stage. It may be taken for granted, therefore, that the Magdalenian industry is older than, or at least contemporaneous with, the Bühl stage which corresponds, by the way, to the Champlain stage in North America.

The rock shelter of Schweizersbild was occupied by palæolithic man after the Würm glaciation had retreated across the Rhine from Canton Schaffhausen. Here 25,000 stone implements have been found; also many bone implements and some engravings, one being of the mammoth. The palæolithic layers were covered in turn by successive deposits belonging to the neolithic, bronze and Roman periods. Taking the thickness of the deposit left since Roman times as representing 2,000 years, the time required for the whole series of deposits is estimated at 24,000 years. The total time elapsed since the maximum advance of the Würm glaciation is still longer, 30,000 years being none too high an estimate for it.

Excavations by order of the Prince of Monaco in the caverns of Grimaldi, near Mentone, furnish proof that man existed in the Riss-Würm interglacial epoch. In the cave of the Prince there are superimposed layers with interglacial fauna at the bottom and glacial fauna at the top. Mousterian implements were found associated with the interglacial fauna. This was a surprise to French archæologists who had hitherto supposed the Mousterian to correspond to a glacial epoch.

A recent discovery, in Switzerland (at Wildkirchli) confirms Penck's conclusions based on the cave of the Prince. The Mousterian station of Wildkirchli is on the Ebenalp (above Appenzell) at a height of 1,477 to 1,500 meters. It consists of two caverns with southeastern exposure that enter the precipitous face of the rock. The upper one of these penetrates backward and upward to the top of the mountain with access to the Weissbach valley below. The caverns are reached by a footpath from Weissbach, the most frequented one being by way of the gap that separates the Bommenalp from the Ebenalp. This gap was produced by faulting, which left the Ebenalp standing 300 meters above its neighbor. The last part of the way is steep and protected by a railing. It would, indeed, be absolutely broken at one point but for a wooden bridge anchored to the face of the rock.



ENTRANCE TO THE LOWER CAVERN AT WILDKIRCHLI, CANTON
APPENZELL, SWITZERLAND

The caverns have been almost continuously occupied by hermits since 1621; the little pilgrimage chapel of Wildkirchli that gives its name to the place having been founded in that year. At the same time the bridge was built giving access to the caverns from the front. The hermit house stood at the mouth of the upper cavern until 1851.

As early as 1861 Rüttimeyer announced the presence of bones of *Ursus spelaeus* and *Capra* in the floor deposits of Wildkirchli. Before that date the hermits used to pick up bones of the cave bear and sell them to the pilgrims. Bächler began his researches which led to the discovery of a pure Mousterian industry during the winter of 1903-04 and continued them during the two following winters. The winter is the best time to work as the caverns are then dry, relatively warm and free from visitors.

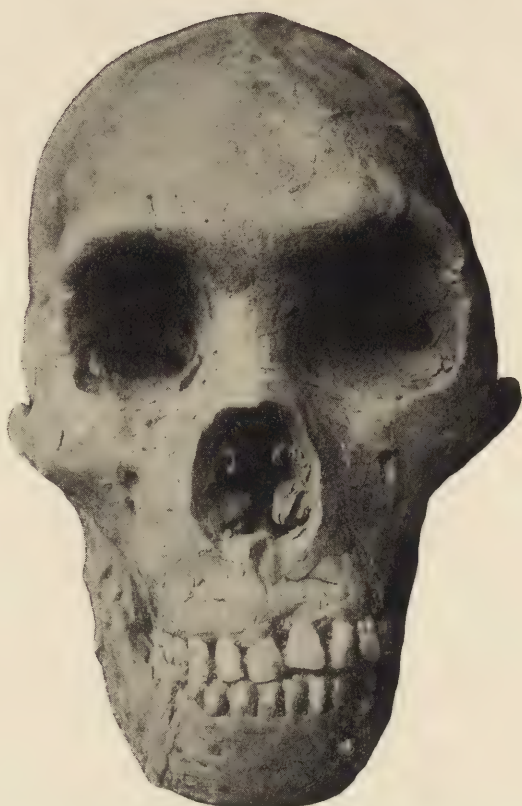
The deposits are about 5 meters thick and cover an area of several hundred square meters, so that the amount still to be excavated is much greater than that already done. About 99 per cent. of the bones found are of the cave bear, the number of individuals represented by

the finds to date being approximately 200. These remains have been found practically at all levels save in the layer at the top which has a thickness of one-half meter. Mousterian implements are found in the same horizons as the faunal remains. They are made of quartzite and flint; also of cave-bear bone. The quartzites were picked up in the Weissbach valley several hundred meters below and carried to the caverns there to be worked into tools. Some of the better formed implements are made of a greenish flint that must have been brought a long distance by palæolithic man. Both stone and bone implements are of crude workmanship. In company with Herr Bächler the writer spent some hours studying the sections and searching for animal remains and artifacts. This was a few weeks before Professor Penck's visit to Wildkirchli. We were successful in finding two bone implements and one chipped quartzite. Teeth and fragments of bones were counted by the dozen. These were chiefly of the cave bear. Remains of the cave lion, the cave panther, badger, marten (*Mustela martes*), ibex, chamois, stag, marmot, otter and hermit crow have been noted.

The deposits are not indurated and may be worked with as much rapidity as is consistent with careful observation. They consist of materials that have fallen from the ceilings. They cannot be called stratified and yet more or less definite horizons may be distinguished on account of the relative fineness of the deposits and the variations in color.

When could Wildkirchli have been inhabited? It lies within the region of glaciation. It could not have been occupied during the Würm glacial period because it is at a height of 1,500 meters, while the snow-line of the Würm glacial period was only 1,200 meters. It is self-evident that man could not have taken up his abode above the snow-line. Even during the Bühl stage of the glacial retreat the snow-line was still as low as 1,500 meters. Man could only have come there after the Bühl stage. But after the Bühl stage we have a different fauna and flora; so that man must have inhabited Wildkirchli before the last (Würm) glacial epoch, that is to say, during an interglacial (Riss-Würm) epoch with climatic conditions similar to those of the present day.

During the last glacial epoch the Wildkirchli caverns were filled with ice or snow and hence no deposits of any kind were formed. The sterile layer one-half meter thick at the top of the floor deposits represents the accumulation since the close of the glacial period. If we allow 30,000 years for post-Würmian times we must allow as much more for the last glacial epoch. Thus to reach the Riss-Würm interglacial period and man's occupation of Wildkirchli caverns would mean going back about 100,000 years. We have here an atypic but pure Mousterian industry, which probably marks the close of the period; for it seems that in France, far removed from the Alps, the Mousterian industry was contemporaneous with a glacial epoch (the Riss) and is therefore much older than that at Wildkirchli.



HOMO MOUSTERIENSIS NORMA FACIALIS



HOMO MOUSTERIENSIS FROM THE LOWER ROCK-SHELTER AT LE
MOUSTIER (DORDOGNE), FRANCE, NORMA LATERALIS

What manner of man was the author of the Mousterian industry? The discoveries in the cavern of Spy near Namur, Belgium, pointed as early as 1886 to the Neandertal race or so-called *Homo primigenius*. All doubt has been dispelled by M. O. Hauser's discovery last summer of part of a human skeleton, including the skull, in the classic station of le Moustier itself. This station, belonging to a wonderful series of palæolithic sites in the valley of the Vezere, France, has been known since the explorations of Lartet and Christy, 1863-65. Hauser very wisely delayed the removal of the human remains from the cavern of le Moustier until after the arrival of a party of German anthropologists, including Professor Klaatsch of Breslau, the party going direct from the German Anthropological Congress held in Frankfort during the first week in August. Here, again, we have to deal with the primitive Neandertal and Spy type, the so-called *Homo primigenius* which now also becomes *Homo Mousteriensis*. A study of the human remains from le Moustier is now being made by Professor Klaatsch.

There is, therefore, no longer any doubt as to the physical characters of man of the Mousterian epoch—man that lived in Europe 100,000 years ago. But the Chellean industry is older than the Mousterian and to the present time no human remains have been found that can with certainty be dated back to the oldest epoch of the palæolithic period. When found, if ever, they will probably be even more primitive in type than *Homo Mousteriensis*. The differences may be great enough to be considered specific as the Chellean epoch was a long one, reaching well back into the long Mindel-Riss interglacial epoch. But the Chellean industry already represents a degree of intelligence that must stamp its author as distinctly *Homo*. This much cannot at present be said concerning the author of the eolithic industry. The latter is found not only in the lower Quaternary but also in the Miocene and even in the Oligocene at Boncelles, a station recently explored by Rutot. From the Oligocene and Miocene up into the lower Quaternary the industry remained practically at a standstill, representing one and the same degree of intelligence.

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THE HIGH INTELLECTUAL CHARACTER OF PRIMEVAL MAN

DOCTOR ANDREW WILSON, in his delightful book, *The Abode of Snow*, tells us that, while crossing the Himalayas by the Pass of Schingo La, he and his party were overtaken by a violent snow storm. Struggling over the crest of the awful pass, amidst glaciers and crevasses, and buffeted by wind and snow, they at last reached a place where it was possible to encamp, and amidst the gathering darkness, the weary party fell fast asleep. At midnight, Doctor Wilson was awakened by the intense cold, and went out of his tent to look upon the scene around. The storm had ceased, and the sky was clear. Perfect stillness reigned, for the intense cold had bound up all sound and movement in its icy fetters. The moon, a little past the full, cast its pale light on the weird landscape, and the stars twinkled serenely in the dark vault of heaven. All around were stupendous mountains, clad in the purest and whitest snow, and great glaciers glittered in the ghostly moonlight. Looking upon that marvellous scene of mountain, glacier, and snow field around, and on the grandeur of the starry heavens overhead, the thought came into the traveller's mind: "What am I compared with these stupendous mountains, these awful and immutable forces of nature, these gigantic stars with systems of worlds circling around them, and this boundless stellar universe? I am a mere speck, a trifling point, an insignificant unit."¹

Similar thoughts seem to have filled the mind of David, as, gazing on the starry heavens, he exclaimed: "When I consider Thy heavens, the work of Thy fingers, the moon and the stars, which Thou hast ordained; what is man that Thou art mindful of him? and the Son of Man, that Thou visitest him?"² The immensity of the creation around and above him overwhelmed him, and he felt that he was a mere speck amidst such boundless space, and such countless worlds. But he soon realized that the greatness of man lay in his reason and spirituality, for he proceeded: "Thou hast made him a little lower than the angels, Thou hast crowned him with glory and honor. Thou hast made him to have dominion over the works of Thy hands. Thou

¹*The Abode of Snow*, pp. 280, 281.

²Psalms viii.

hast put all things under his feet." Thus David rightly perceived that man's position in nature must be determined by his mental and moral powers, and by his works. The noblest thinkers in all ages, have followed the same line of reasoning. Kant, the great philosopher of Königsburg, gives his opinion on the question in the following words: "Two things fill my soul with an admiration and a veneration, ever new and ever increasing; the starry heavens above me, and the moral law within me. I am not compelled to look for these two grand sights through the covering of a mysterious obscurity, nor to ascertain them vaguely at an infinite distance. I contemplate them immediately before me; they are bound to the very consciousness of my being. The one, the visible heaven, begins at the very point of the Universe where I am, and widens around me in circles of worlds, in systems of systems up to the infinitude of spaces and of times in which these worlds are situated. The other, the moral law, equally starts from my invisible self; it places me in the midst of the intellectual universe, that other infinitude with which my personality stands in a necessary relation. And while the first (the sight of the heavens) annihilates my personal importance, the second (the fact of the moral law) raises to the infinite the worth of my personality; since that law manifests in me the existence of a life completely independent of my animal life, and of the world of sense."

Lord Beaconsfield held similar opinions. In discussing the idea, that science by demonstrating the insignificance of the earth in the vast scale of creation has strengthened modern infidelity, he says: "Science may prove the insignificance of this globe in the scale of creation, but it cannot prove the insignificance of Man. What is the earth compared with the sun? A molehill by a mountain; yet the inhabitants of this earth can discover the elements of which the great orb consists, and will ere long ascertain all the conditions of its being. Nay, the human mind can penetrate far beyond the sun. There is no relation therefore between the faculties of man and the scale in creation of the planet which he inhabits."³

Such is the true way of determining man's position in nature. Comparative anatomy can tell us but little. It merely deals with the *lower* or *inferior* portion of man. The mental and moral faculties of man have to be examined, and it is from the character and actions of these, that we conclude that man possesses a spiritual nature, and had a supernatural origin. The sense of duty; the voice of conscience; the power of reason; the marvels of memory; the pleasures of the imagination; the joys of hope; and above all the strength and permanency of the religious instinct, carrying with it as it does, the craving for immortality, all these combine to show that man had a supernatural origin in the past, that he possesses a supernatural nature

³*Lothair*, p. 409.

in the present, and that he will enjoy a supernatural existence in the future.

But at this point we are met with an objection, which every student of human nature is bound seriously to consider. We are told that the revelations of modern science have entirely altered our views on the character and origin of man. These discoveries have proved that man is nothing but an improved ape, and that his distant ancestors were purely bestial. From this degraded primitive state, in which he was more debased than the lowest of existing savages, he slowly raised himself by a long struggle with nature which lasted for ages. The lowest savages now existing therefore, have some resemblance to the earliest men, although even they are not degraded enough to reveal to us the earliest human beings. It is all very well—so we are told—to prove man's supernatural origin and destiny from our mental and moral faculties, but we take our examples from men as they exist *now*. The earliest men revealed to us by science, did not possess these mental and moral faculties for they are the result of long and slow development. Moreover, so the objectors continue, the lowest savages—who represent primitive man—do not possess these mental and moral faculties either. Hence it is that the argument altogether fails. Those high mental and moral faculties which civilized men possess were not inherent in the earliest members of the human race, but are the result of a long development, and they have been slowly acquired during a long struggle with adverse circumstances, which has lasted for ages.

Is this a fair statement of the results of scientific research as far as man is concerned? We think not.

Why are we to suppose that present savages represent the earliest men? Because, we are told, man slowly raised himself from ape-like progenitors by a long and painful struggle. But this is the very point in discussion, and it has to be *proved*, and not *assumed* at the beginning of the discussion. The debate cannot be allowed to begin by a *petitio principii*, for we *require* satisfactory *reasons* that man had ape-like ancestors. Besides all this, if the lowest savages are now nearly in the condition of the earliest men, how have they not raised themselves from this state? Why have they fallen behind, when other men have risen? They have, by the hypothesis, lived *longest* on the earth, therefore they ought the more surely to have advanced from their primitive state, and not to have remained stationary. Two great facts show that these lowest savages are as really and truly men, as their more civilized brethren. *First*, the fact that there is the power of improvable amongst the lowest savages. *Secondly*, the equally certain fact that degradation has for a long time affected these most debased races of mankind. Who are the most degraded amongst savages? We are of course referred to the Australians, the Bushmen, the Andamaners (*Mincopies*), the Veddahs, and the Fuegians. It is however

strangely forgotten that all these savages possess a *wonderful capacity for improvement*, which can be drawn out by education, and this shows that they are as much men as are the cultured Europeans of the present day. Thus the Australians are so intellectual that in Queensland they have been taught to make excellent police. They have been taught to play chess, and the children quickly learn in the English schools. Their paintings also on the rocks in many parts of Australia show marvellous artistic powers. The degraded Bushmen of the South African desert have the highest intelligence of all the savages of that region. They are fond of music and singing, and they are also very skillful in painting and drawing. Then take the Fuegians. They are thought to be the lowest representatives of humanity. But what are the *real* facts? Through the zealous laborers of the members of the South American Missionary Society, they have been reclaimed, taught to read and write, and have been instructed in all the arts of civilization. Darwin himself admitted that the progress of Fuegia was the most wonderful thing he had ever heard of. It is exactly the same with the Veddah of the Rocks in Ceylon. No one in the present day, will maintain that the Eskimo are a degraded people. They only live in the manner that their Arctic home compels them to live. They have been taught to manage English sailing vessels and to play musical instruments so as to develop correct tunes and airs. The successful labors, also, of the members of the Church Missionary Society, have shown how their moral character can be developed. These labors have been chiefly in the regions around Hudson's Bay, but the work of the Danish Missionaries amongst the Eskimo in Greenland, further testifies to their moral improvability. Then, let us take the case of the Mincopies, the black dwarfs of the Andaman Islands. The worst charges brought against them in former days, have now been shown to be false. Professor De Quatrefages, in a recent work⁴ has collected—in a review of the labors of Mr. Man—a mass of interesting information relating to the Mincopies, and comes to the conclusion, that their mental and moral characteristics, are of a high order. Unfortunately they are being corrupted by the pernicious influence of white convicts and traders.

Another interesting fact concerning modern savages, is, that most of them show, in their habits and traditions, clear proofs that their ancestors were once in a far higher state of development than they themselves are at present. Take one line of evidence alone, that of language. Here we may draw attention to the remarkable paper of Mr. Horatio Hale called *Language a Test of Mental Capacity*.⁵ In this the author maintains that language is the true ground of

⁴*Les Pygmées.*

⁵This paper was read at the annual meeting of the Royal Society of Canada, and was published in the *Transactions of the Royal Society of Canada*, Vol. IX, Sec. II, 1891.



AUSTRALIAN TYPES

- 1, 2, Making Fire with a Stick. 3, Throwing Boomerang. 4, Throwing "Nullah-Nullah."
 5, Warrior of Workii Tribe, Queensland. 6, Clarence River Warrior, N. S. W.
 7, Chief of Bombala Tribe, N. S. W. 8, Chief of Karundee Tribe, Queensland.

anthropological classification, and proceeds to examine the languages of barbarous races in succession. He shows from their complex language, that the Australian aborigines originated in the cultured races of the Dravidians of India. In the same manner the languages of many of the American aborigines prove that they are the savage descendants of cultured ancestors. On the improbability of the Australians, also, Mr. Hale draws attention to the remarkable work of two Spanish Benedictines. Fathers Serra and Salvado, who established a native settlement in Western Australia. One of the girls of the Aborigines educated here, holds an office in the postal and telegraph service of the West Australian Government. The boys learn well, and become good workmen, as capable as the whites. That the native Australians are descended from the cultured Dravidians admits of little doubt, the similarity between the Dravidian and Australian languages strongly confirming this theory. Mr. Hale sums up the result of his inquiries in the following striking words: "The result of our inquiries—a result deduced alike from the evidence of language and that of history—is that a state of barbarism does not imply any inferiority in intellectual power. It simply indicates that the barbarous people have been compelled to live amid surroundings which rendered any advance in culture impossible. Remove the savage Athabascans to the bountiful pastures and fertile valleys of New Mexico, give them horses, cattle, and sheep to tend, and wheat

and fruits, and edible roots to cultivate, and presently their torpid faculties rebloom, and they become the quick-witted and inventive Navajos. Remove the shrewd, industrious, enterprising, improving Dravidians to the barren plains of Australia, and they sink in time to what has been deemed the lowest level of humanity.

"This naturally leads us to consider some of the theories which have lately been put forth in regard to the condition and character of primitive man. Strange to say, the modern representatives of this unknown individual have been looked for in places where, by the common consent of all physiologists, he could not possibly have come into being—in Australia, in South Africa, in the Pacific Islands, and in America. Many works have been put forth in which speculations, based entirely on what has been learned of the inhabitants of these regions (but generally in utter disregard of the teachings of linguistic science) have represented the earliest men as sunk in the lowest debasement of mind and morals. * * * But if the conclusions drawn from the facts recorded in the previous pages of this essay are correct, all these peculiar usages of barbarous tribes are simply the efforts of men pressed down by hard conditions below their natural stage, to keep themselves from sinking lower, and to preserve as far as possible the higher level of intellectual, moral, and social life, to which their innate faculties tended to exalt them. They are like the struggles of a bird in a cage to keep its wings in use for flight. A child who should assume that the primitive canary could only flutter for a distance of a few yards, would be as wise in its inference as the philosopher who regards the Australians and the Fuegians as representatives of primitive man. The physiologist sees at a glance in the structure of the bird's wings the kind of flight for which it was intended, and the philologist discerns in the Australian and Fuegian languages, evidences of the mental endowments, which, under other circumstances, would have placed the speakers of those idioms very far above their actual condition."

It is interesting to notice, that Dr. Alfred Russel Wallace, who is a supporter of the Darwinian theory, except as concerning man's origin, comes to a similar conclusion. In a recent paper in *The Fortnightly Review*,⁶ he maintains that the progress of modern civilization, does not prove the mental superiority of the men of the present day, over the men of the earliest ages. He says: "Our intellectual and moral nature has not advanced in any perceptible degree." He further maintains that savages, "when sympathetically studied, are found to resemble ourselves in their inherent intellectual powers," which is proved by their "complex language, their elaborate social regulations, and often by an innate nobility of character." All this tends to show, according to Doctor Wallace, the absolute necessity of *moral evolution*, and development of *character*, which is the true human nature, as opposed to mere materialistic knowledge.

⁶January, 1908.

It is precisely in this moral nature, that, if perverted, is found the secret of that degeneration, which, coupled with adverse physical conditions, has brought so many savage races, into their present state of degradation. Do we not, again and again, see *individuals*, although possessing wealth and culture, sink into a state of degradation and poverty, simply because they have yielded to the promptings of their lower and baser nature? Turning a deaf ear to the calls of duty, and to the warnings of conscience, they have gratified the cravings of their animal passions, and, as a result, they have lost wealth, character, health, and ultimately, life itself. As it is with the *individual*, so it is with the *race*. In the struggle for existence races become degraded and at last die out, because through moral excesses their constitutions were so weakened, that they were overcome by stronger invaders. The weaker were then driven into inhospitable regions, where, suffering in body and mind through moral excesses, adverse physical conditions completed their ruin. The late Duke of Argyll, in one of his latest works mentions the three great causes, which occasion man's degeneration, enumerating them as follows: *First*, the yielding to the animal passions within the soul; *secondly*, internecine conflict, springing from ambition and love of power; *thirdly*, adverse physical and geographical conditions. All these, he powerfully shows, combine to produce the degradation of races who were once more cultured and civilized than they are at present.⁷ These views are also powerfully maintained, by one whose writings cannot be surpassed in the English language for beauty of expression and for graphic power of description, I allude to Hugh Miller. After discussing the decay and degradation of the lower races, Miller pertinently asks the following question, which he answers in his own graphic and picturesque manner:

If man, in at least the more degraded varieties of the race, be so palpably *not* what the Creator originally made him, by whom, then, was he made the poor, lost creature which in these races we find him to be? He was made what he is, I reply, by man himself; and this, in many instances, by a process which we may see every day taking place among ourselves in individuals, and families, though happily not in races. Man's nature, again—to employ the condensed statement of the poet—has been bound fast in fate, but his will has been left free. He is free either to resign himself to the indulgence and self-indulgence so natural to the species; or “spurning delights, to live laborious days;” free either to sink into ignorant sloth, dependent uselessness, and self-induced imbecility, bodily and mental, or to assert by honest labor a noble independence—to seek after knowledge as for hidden treasures, and, in the search, to sharpen his faculties and invigorate his mind. And while we see around us some men addressing themselves with stout, brave hearts to what Carlyle terms, with homely vigor, their “heavy job of work,” and, by denying themselves many an insidious indulgence, doing it effectually and well, and rearing up well-taught families in usefulness and comfort to be the stay of the future, we see other men yielding to the ignoble solicitations of appetite or of indulgence, and becoming worse than useless themselves, and the parents of ignorant, immoral, and worse than useless families.”⁸

⁷*The Unity of Nature*, pp. 407-448.

⁸*The Testimony of the Rocks*, pp. 255, 256.

Hugh Miller gives a striking case to prove this. He refers to the plantation of Ulster in 1611, and to the successes of the British against the rebellious Irish in 1641 and 1689. At these times multitudes of the native Irish were driven into the mountains. Here they fell victims to the great brutalizers of the human race, hunger and ignorance, and their descendants for a long time exhibited a state of great degradation. Such instances must have occurred again and again, in the early ages of the human race, and they are constantly taking place among barbarous communities in the present day. These facts help us to understand, how savage races of men may be the descendants of ancestors, who, in the remote past were more cultured and civilised, than are their degraded descendants who live in the present time.

We are, however, in this paper, principally concerned with primitive man, and with his intelligence, so we will pass at once to this branch of our subject.

The first question to be answered is: "When did man appear upon the earth, and where are his earliest traces to be found?" We do not consider it necessary to discuss the question of Tertiary man, because our best geologists deny that man existed in the Tertiary period. And with good reason, for there has not been a single bone or skull of man found in any Tertiary deposit. The so-called Pliocene men whose relics were found at Castelfidardo near Brescia, are now abandoned, and the imaginary "cut bones" are not considered now to be the works of man. The rude flints of Thenay, Otta, and Puy-Courney, which were formerly thought to be of human workmanship, are now held to be merely formed by natural causes. Sir John Evans, our greatest authority on flint implements has most emphatically rejected these so-called "evidences" of the earliest existence of man,⁹ and the Marquis De Nadaillac, one of the best of French archaeologists, after enumerating all the so-called "proofs" of man's existence in the Tertiary period, rejects them all,¹⁰ and in this conclusion, he is supported by most of the leading men of science in France. M. Lapparent, speaks contemptuously of the "legends of Tertiary man."¹¹ In Germany also, Tertiary man, is not accepted and M. Hugo Obermaier has even thrown grave doubts on many of the recent discoveries of man's remains, which had formerly been accepted as genuine.¹²

But even if we accept the rude fragments of flint which are found in the Tertiary beds as having been made by man, would that justify us in concluding that their makers were more degraded and nearer to the apes than are any savages now living? Certainly not. All

⁹*Ancient Stone Implements of Great Britain*, 2d Edition, p. 658; also *Address to the Anthropological Society of Great Britain*, 1890; also *Address to the British Association at Toronto*, pp. 8, 9.

¹⁰*L'Homme et le Singe*, pp. 57-64.

¹¹*Les Silex Taillés et l'Ancienneté de l'Homme*, pp. 19-24.

¹²See *Anthropologie* t. XVI (1905) and t. XVII (1906).

the experience which we have gained from our knowledge of modern savages, teaches us that it is perfectly useless and misleading to judge the mental and moral condition of barbarous races, from the rudeness of their weapons and implements. Let us take a special case, that of the Tasmanians, who finally became extinct in 1877. Their weapons were of rudely chipped stones, which were so rough that they strikingly resembled those used by primitive man in the Palæolithic Age. Speaking of the weapons of the earliest men, Dr. E. B. Tylor, said, that even a lower type of weapons than those of the Palæolithic Age had been used by the Tasmanians. These tools were never handled, the makers of them had no bows and arrows, and were perhaps the lowest of *all* living savages, spending their time in wandering about and having no settled abodes.¹³ What are the real facts about these Tasmanians? They belonged to the Australian family of Polynesian races, but they were physically very superior to the Australians. Their average cranial capacity was 1348 cubic centimetres,¹⁴ so that they had larger brains than the Eskimo of Western Greenland, and not only so, but the brains of these Tasmanians were much larger than those of the Peruvians, who were the most civilized race in ancient America! The language of the Tasmanians resembled that of the Australians, which has been declared by Hale to show much former culture and civilization, for he says: "The Australians, whom some too eager theorists have accepted as the best representatives of Primeval man, prove to be the offspring of one of the most highly endowed races of Southern Asia"¹⁵ (i. e. the Dravidian). In India the Dravidians prior to the Aryan invasion occupied nearly the whole of India, and at the present time the Dravidian race is supreme in the south of the peninsula and nearly 50 millions of people in India now speak the Dravidian language. The fact that the Australians and the Tasmanians are members of the *same race*, leads us more fully to consider the anthropological condition of the former, and on this, again, we may listen to the striking words of Mr. Hale, who says:

The Australians have been accepted by some distinguished members of the Darwinian school (though not by Darwin himself) as the best surviving representatives of the earliest men of the present human species. Their reasoning may be stated succinctly in a syllogistic form as follows: The earliest men of the existing species must be supposed to have been the lowest of men in intellectual capacity, and in social condition. The Australian aborigines are now the lowest men in intellect and in social condition. They must therefore be deemed to represent more nearly than any other race the character and social condition of the earliest men.

Both premises assumed in this reasoning are mere assumptions, which are not only not based upon facts, but are opposed to the clearest indications derived

¹³Presidential Address to the Anthropological Section of the International Oriental Congress in 1892.

¹⁴Topinard, *Étude sur les Tasmanies*, p. 327, and *Crania Ethnica*, by MM. De Quatrefages and Harny, p. 233.

¹⁵Hale, *op. cit.*, p. 443.

from the actual data we possess. There is no better reason for supposing the earliest men of the present species to have been low in intellectual capacity, than there is to suppose them to have been small in stature and physically weak. The men who combated and overcame the monsters of the Quaternary Era, the mammoth, the cave-bear, and the cave-lion, and whose earliest historical offspring reared the vast architectural piles of Egypt and Assyria, must have been as vigorous in mind as in body. As for their supposed modern representatives the Australians, it is astonishing that highly educated men, professors of philosophy, who undertake to treat of the intellect of a race, should refuse to consider that prime and incomparable exponent of intellect, the language.¹⁶

That the native Tasmanians were capable of being civilised, and of assimilating European culture, has been proved beyond all doubt. In the schools the Tasmanian children, were, on the whole, fully equal to the children of the whites. M. De Quatrefages, also, gives a striking account,¹⁷ of a civilized, genuine Tasmanian called Walter George, who had received at school an English education, and had profited by it in a remarkable manner. George lived in a neat English house, which his wife,¹⁸ kept scrupulously clean. He wore European clothes, spoke the English language, and had not the least vestige of savagery. He read the daily newspapers, and had a little collection of books, amongst which the Bible occupied the foremost place. His manners were polite and affectionate, and he was quite a representation of an English gentleman. After this, no one with any knowledge of the case, would dream of calling the Tasmanians a degraded and brutal people, rather must we join with Governor Arthur in declaring that we are compelled to consider the Tasmanians to have been a simple but brave race, endued with "noble instincts."¹⁹

But let us now consider closely the intellectual character of the men of the Quaternary Period, since in this era we have so many traces of the earliest members of the human race, that we can more easily and fully ascertain their mental development.

In the Quaternary Period we find the great Ice Age or the Glacial Period, and it will be best to adopt the simple division of the Quaternary Epoch, which subdivides it into, Pre-Glacial, Glacial, and Post-Glacial Periods. Let us first assume that man was of Pre-Glacial origin, and that he appeared in Great Britain during that mild and genial time, which preceded the Glacial Period.²⁰ If this were the case, what became of Quaternary man in Great Britain during the Glacial Era, when England and Scotland were overwhelmed by vast ice sheets, and were buried as Greenland is now, hundreds of feet beneath an enormous *Mer-de-Glace* of moving ice?

It is generally replied that man in Northern Britain migrated to the warmer regions of the south, where he lived until the Glacial

¹⁶Hale, *Op. cit.*, p. 433.

¹⁷*Hommes Fossiles et Hommes Sauvages*, pp. 354, 355.

¹⁸A half-caste.

¹⁹*Daily Life and Origin of the Tasmanians*, by James Bonwick, p. 9.

²⁰This is the opinion of M. de Mortillet in his *Le Préhistorique Antiquité de l'Homme*. Deuxième Edition, 1885, pp. 227-251.

Period had passed away. Let us consider what this implies. *Why* should man migrate? Either from want of food, or from internecine warfare. How came the earliest men in Britain to know that there was a warmer region? How did they understand that it lay in the *south*? And how did they find out its *direction*, and discover the *way* thither? It is easy for *us* to know these things now, but if Quaternary man knew them, he must from the beginning have been in the *fullest possession* of human faculties. He must, in fact have been as truly man, as we are now. How did man in Britain cross the channel? If he constructed boats, he must have been both a brave and a skillful navigator. If however, he waited until, owing to the extreme cold of the Glacial Period, the English Channel was frozen over, then he must have crossed on *sledges*. Here again, he exhibited a marvellous triumph of inventive genius, and truly human adaptability to the change of climate and conditions. Arrived in France, the earliest men, must have found themselves in a region of impenetrable forests, through which their rude stone weapons could not cut a way. They must therefore have used the rivers, by means of boats and rafts, as M. Dupont maintains,²¹ or advanced by means of sledges, if the rivers were frozen over. At the same time they must have invented an elaborate system of *clothing*, to provide themselves with protection against the increasing cold. Thus moving southwards, along the courses of the Saone and the Rhone, they reached the shores of the Mediterranean, where, as the climate was milder, we may suppose that they halted. All these complicated movements imply the highest human intelligence.

When the Glacial Period had passed away, primitive man again entered Great Britain. Why did he do so? Why did he leave the warm coasts of the Mediterranean and once more penetrate into the savage and inhospitable regions of the North? There can be only one answer to this question. The most cultured races of men in primitive times lived in the warm southern regions, and as they increased in numbers, they, by force of arms, *drove* the weaker tribes into the gloomy regions of the north. Thus, we must look far to the south for the earliest men, and we are compelled to admit with Sir William Dawson,²² that even in the *earliest* times of the Quaternary Period, cultured races and civilised communities, lived along the eastern shores of the Mediterranean Sea. Such a conclusion gives the death blow to the theory of the bestial degradation of primitive man.²³

But now let us look at the question in another light. Let us suppose that when the Glacial Period prevailed, man did not leave Great Britain, but remained where he was and braved the terrors of the Great Ice Age. What follows from this? During the Glacial

²¹*L'Ethographie de l'Homme de l'Age du Renne*, p. 71.

²²*The Meeting Place of Geology and History*, pp. 203, 204.

²³See *The Unity of Nature*, by the late Duke of Argyle, pp. 422-426.

Period, Great Britain was covered with a vast continuous sheet of moving ice, more than 1,000 feet in depth. A narrow fringe of land alone along the southern coast of England was permanently free from ice. But this must have had a very severe snowfall in the winter, during which time the English Channel must have been frozen over.²⁴ Greenland, at the present day, must be much like England in the Glacial Period, though probably a hardy, though scanty vegetation, flourished between the border of the ice sheet, and the English Channel. In Greenland, the habitable land consists of a mere fringe from 5 to 25 miles in thickness, between the sea and the inland ice. The interior is a frozen desert, some 1,200 miles in length and 500 miles in breadth, and is a vast mass of solid ice, and spotless snow.²⁵ If Quaternary man in Great Britain, therefore, remained where he was during the Glacial Period, he must have lived on the mere fringe of habitable land, which, as it does now in Greenland, existed between the inland ice and the English Channel.

Let us see what this involves. First, Quaternary man must have changed his manner of living as the climate grew colder, until his life was like that of the Eskimo. He must have given up building wooden wigwams, and for the future he must have constructed snow houses. Formerly he was clad in skins, but now he dressed himself in furs, and, having invented a new kind of clothing, he was compelled to cover himself with it in a different manner. New kinds of food had now to be discovered, which were obtained in a different manner. Formerly Quaternary man hunted the elephant, the rhinoceros, and the hippopotamus, now he was compelled to kill the seal, walrus, the musk-ox, and the polar bear. The capture of the former animals made him adopt a sea-faring life, which was quite new to him. New kinds of boats had also to be invented, for the frail canoes which were used on the rivers had to be abandoned, and strong boats, like those used by the Eskimo, had to be constructed. Now, all this shows a splendid triumph of human intelligence over the powers of nature. In order for primitive man to achieve this triumph he must have been in possession of *genuine human faculties* at the beginning of his existence. The earliest men in Northern Europe, must have possessed a marvellous mental power to have maintained themselves amidst the terrors of the ice sheets and glaciers of the Glacial Period. They were as truly men as are the skilful Eskimo, and were no nearer to the apes than are these intelligent denizens of the Arctic Regions, who have been taught to manage English vessels, to sing from notes, and to acquire all the elements of modern civilized education.²⁶

²⁴See the map of the Great Ice Sheet of Northern Europe in Professor J. A. Geikie's *Prehistoric Europe*.

²⁵The best description (in summary) of Greenland that I know is given by Peary in his *Northward Over the Great Ice*, Vol. I, pp. xxix-xxxvi.

²⁶The reference is chiefly to the wonderful progress made by the Eskimo in the Danish settlements in Greenland. See illustration, page 53.



ESKIMO IGLOO OR HUT IN THE EXTREME NORTH OF GREENLAND ON THE NARROW LAND-BORDER BETWEEN THE OCEAN AND THE GREAT ICE CAP.

Photo by Dr. Libbey

If it be maintained that man entered Northern Europe, only *after* the Glacial Period had passed away, we ask, "*why* did man enter such a rough and savage region, and why did he leave the warm and sunny southern lands, around the Mediterranean Sea?" The reply must be that he was *driven* to do so. Stronger and more cultured races *drove* him northwards. Hence, we again reach the conclusion that the earliest men were in a high state of intelligence, and the men whose remains have been found in the Quaternary beds of Northern Europe, were in all things as truly men, as we ourselves are to-day.

A further evidence of the high intelligence of primeval man, is found in the manner in which he maintained himself against the swarms of monstrous and ferocious beasts by which he was surrounded. Not only did he hold his own against them, but even, so we are told, he actually exterminated many of them.²⁷ We must remember, also, that man achieved this astonishing victory over these mighty animals, by means of *stone* weapons, which were of the *rudest possible* character. His triumph, therefore, was solely due to his wonderful

²⁷This is the opinion of Professor Boyd Dawkins. See *The Popular Science Review*, Vol. VII, pp. 285, 286.

intelligence. Let us examine this point closely. The great beasts of the Quarternary Period were far more numerous and terrible than any which have lived on the earth during the Historic Era. The cave-lion, the cave-bear, and the cave-hyæna, were far larger and stronger than any lions, bears, and hyænas, which live now. The terrible sabre-toothed tiger (*Machairodus*) was a more fearful beast to encountry in Quaternary times, than any carnivorous animal that lives at the present day, and to those animals already mentioned, must be added, the wolf and the leopard. And yet, against these gigantic and blood-thirsty beasts, man waged a triumphant warfare, with the *rudest* and *feeblest* of stone weapons! Never, since his advent in the world, has man been such a "mighty hunter," and never has he demonstrated his power over the animal world so grandly, as he did in the earliest ages of his existence, during the Quaternary Period. In a popular scientific work,²⁸ there is a picture which strikingly portrays the warfare which primitive man carried on against wild beasts. Man, armed with rude weapons is defending himself against the attack of bears and hyænas, while the remains of some are cooking on his fire, showing the victories that he has gained. Herbivorous animals, such as the elephant, rhinoceros, and wild horse, form the background of the picture.

It is true that the diminutive Bushmen of South Africa have maintained themselves against the swarms of savage beasts by which they are surrounded,²⁹ but then, they use, and always *have* used weapons of *iron*. More than this, the intelligence of the Bushmen far surpasses that of any of the natives of South Africa, as in music, dancing, and drawing, they have no equals in all South Africa, while as hunters, their skill and daring are simply amazing. They do not hesitate to attack the lion, in the most fearless manner, and they are nearly always victors.

Let us think of the *weapons*, with which the earliest men attacked the mighty beasts with which they were surrounded. These weapons were all of *stone*. Foremost of all was the hatchet, then the spear; and lastly the knife and the dagger. Let us reflect upon the difficulty in giving these weapons a proper cutting edge, and the equal difficulty of handling them properly. These would form serious obstacles to striking a heavy blow. One weapon of power primitive man did possess, and that was the *bow*. It needed the greatest ingenuity to invent it, and to bring it to such a perfection that it became a most dangerous weapon, in fact the discovery of the bow, has been called by a talented writer,³⁰ the most wonderful of all human inventions. Nevertheless, the arrows used by the earliest men show that they were of imperfect form, as they were neither barbed nor stemmed.

²⁸*The World Before the Deluge*, by Louis Figuier, p. 406.

²⁹Chiefly of course before the advent of the whites and the introduction of fire-arms.

³⁰Professor W. I. Thomas in his learned work, *Sex and Society*.



HANS EGEDE, THE FIRST MISSIONARY TO GREENLAND. PAINTED BY
RASMUSSEN, A NATIVE ESKIMO

Photo by Dr. Libbey

It is however, very striking that some were constructed in such a manner, as to show that the earliest men in the Quaternary Period, used *poisoned* arrows.³¹ Now, the construction of a poisoned arrow, is a great triumph of human intelligence. The poison has first to be discovered, and then its effects on wild beasts has to be observed. Next, it has to be prepared, and its proper degree of strength has to be calculated. Various kinds of poisons have to be classified, and their effects on different animals must be carefully observed. The Bushmen of South Africa, who are the greatest hunters in the world, cover the iron heads of their arrows with poison, and form the arrowheads in such a manner that they become detached in the body, on any attempt being made to withdraw them from the wound.³² The Bush-

³¹*Les Invasions Paleolithiques*, par. M. Girod, pp. 55, 57. M. Girod also figures these (bone) arrow-heads in plates X, XII, at the end of his book.

³²*The Natural History of Man*, by Rev. J. G. Wood, Vol. I, p. 284.

men (according to Livingstone³³) use two kinds of poison, one of an animal and the other of a vegetable character, and other poisons are frequently added to the compound, in order to increase its deadly nature. Every one knows that the intelligence of the Bushmen is amazing, and we shall afterwards refer to their wonderful powers of drawing, and singing. That primitive man used poisoned arrows is admitted by Sir John Evans,³⁴ and the proofs that these deadly weapons were employed in primeval times are steadily increasing. Here, then, in the use of poisoned arrows, is another unanswerable evidence of the high intelligence of the earliest men.

But the darts and arrows of primeval man were of no avail against the mighty fur clad mammoth and hairy rhinoceros, for these ponderous beasts were thoroughly protected against such puny weapons. Nevertheless, the earliest men killed these mighty beasts. How then did they slay these gigantic animals? Evidently by means of snares and pitfalls, and by the use of such traps as are now employed by the natives of South Africa. Livingstone has described these pitfalls at length. One of them, called the "Hopo," is a deep pit at the end of two long converging fences, between which the animals are driven, until they fall into the pit at the extremity.³⁵ Other traps consist of darts suspended overhead, and of cords for entangling the legs of the animals. Now, the larger animals, such as the Mammoth and woolly rhinoceros, were doubtless taken by primitive man in this manner. A talented French writer has pictured the earliest men, ensaring the Mammoth in a great pit, and smothering it by means of fire.³⁶ He also gives an illustration of a herd of wild horses being driven by the hunters over a high cliff, so that many were killed by the fall.³⁷

Now, all this elaborate construction of traps, snares, and pitfalls, implies a very high state of mental intelligence and ingenuity. Each snare could only have been constructed after the nature of the animal to be entrapped had been carefully observed. After many attempts and failures also, the snare must have been perfected, for the hunters must have been always improving on their inventions. The faculty of primitive man, therefore, for observation, calculation, and invention, must have resided in his nature from the *very beginning*, so that at the very commencement of his existence, man must have been as *truly man* as he is in the present day.

But here it may be asked: "How do we know that the earliest men really overcame such mighty beasts, and what evidence is there to show that they slew the strongest and largest animals then living?"

³³ *Missionary Travels in South Africa*, p. 171.

³⁴ *Ancient Stone Implements of Great Britain*, 2d Edition, p. 361.

³⁵ *Missionary Travels*, p. 26.

³⁶ *Solutré, ou les Chasseurs de Rennes*, par Adrien Cranile, p. 128.

³⁷ *Ibid.*, p. 96. This book is a work of the imagination, but it possesses great scientific value.

The answer is given by the relics found in the caves, and by the hunting scenes carved by primitive man on horn, ivory, and slabs of slate. In many caves in France and Belgium the bones of the lion, elephant, rhinoceros, and hippopotamus, have been found mingled with ashes of fires, and with flint knives, the bones show that they had been cut and broken by human hands. Thus, in the "Doctor's Cavern," in the valley of the Rona, in Belgium, there were two distinct bone beds containing the remains of at least 250 individual animals. These were, the lion, bear, hyæna, elephant (Mammoth) and rhinoceros. These animals had, according to MM. Fraipont and Tihon, who first explored the cave, all been killed by man and cut up outside the cavern, and the severed parts were then brought inside by man to be eaten.³⁸ Flint and bone weapons, used by the hunters, lay amidst the bones and ashes. In the cave of Goyet, also Dupont found the bones of the lion, hyæna, bear, elephant, and rhinoceros, mingled with human weapons of the hunters,³⁹ and Dupont maintains that man killed and ate these great beasts, taking the larger ones by means of snares and pitfalls.⁴⁰ Again, in the cave of Brassempouy in Western France, the bones of the elephant (Mammoth), rhinoceros, and spotted hyæna, were found lying around the ashes of a fire.⁴¹ A wonderful burial ground has been discovered at Solutré in Western France. Here lay skeletons of the earliest men of the Quaternary Era.⁴² Fires had been made amidst the graves, and amongst them lay the bones of the elephant, wild ox, and hyæna. These had been killed, and eaten by man at his funeral feasts, and arrows and spear-heads of flint lay close by. Pictures also portraying hunting scenes, carved on bits of horn, and slabs of slate, have been found amongst the relics of the earliest men. One of these shows a man attacking a wild bull (i. e. aurochs,⁴³) and another represents some reindeer taken in a trap or pitfall.⁴⁴ Another carving depicts a man hunting wild horses, and, as on the other side of the piece of horn on which this scene has been engraved, two bisons' heads appear, it is plain that these mighty animals were regularly hunted by primeval man.⁴⁵

Now, tribes of hunters are usually characterised by the greatest intelligence, and by a very high mental development. Thus the Monbuttoos of Central Africa are a nation of hunters, and they are the most intelligent and cultured of all the natives of Central Africa.⁴⁶ The intelligence of the Bushmen, who live exclusively by hunting, is also well known, and the Arctic Eskimo furnishes another example.

³⁸*Explorations Scientifiques des Cavernes de la Vallée de la Meuse*, p. 41.

³⁹*L'Homme pendant les Ages de la Pierre*, pp. 107-121.

⁴⁰*Ibid.*, p. 185.

⁴¹*Bulletin de la Société d'Anthropologie de Paris*, p. 641.

⁴²*Etudes sur la Station Préhistorique de Solutré*, par M. l'Abbé Ducrost et M. le docteur L. Lartet. Tome I, p. 7, 1872.

⁴³*Les Invasions Paleolithiques*, par. M. Girod, plates xix, xx.

⁴⁴*Early Man in Britain*, by W. Boyd Dawkins, p. 215.

⁴⁵*Reliquiæ Aquitanicæ*, B. Pl. 2, Fig. 5.

⁴⁶See *The Heart of Africa*, by Sweinfurth, Vol. II, p. 299.

Like these denziens of the Polar Regions, the earliest men killed the seal, hunting it probably in canoes with harpoons; figures of seals have been found engraved on reindeer horn and on a bear's tooth, the former having been found in the cave of Montgaudier,⁴⁷ and the latter in that of Duruthy.⁴⁸ From the same cavern comes a grand hunting trophy, for, close to a human skull, were found 40 canine teeth of the bear, and 3 of the lion. All these teeth were perforated for suspension, and on some of them figures of animals were carved. They evidently formed part of a necklace, which had been hung round the neck of the individual whose skull lay near, and who had killed these mighty animals.⁴⁹ Professor Traipont gives a graphic description of the way in which the earliest men hunted the mighty beasts of those days.⁵⁰ Dwelling on the rudeness of the earliest stone weapons, he depicts the snares, traps, and pitfalls in which the great animals were taken; then he shows how they were cut up where they were killed, and parts of their bodies carried into the caves, where the hunters held their feasts.

We need not pursue this branch of the subject farther. Enough has been said to show how with the rudest of stone weapons the earliest men conquered the gigantic animals which swarmed around them. This was a splendid triumph of human intellect, and it unanswerably demonstrates the high intellectual character of primitive man.

[This article will be followed by one on the High Artistic Power of Primeval Man.]

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⁴⁷*La France Préhistorique*, by E. Cartailhac, p. 82.

⁴⁸*Ibid.*, p. 73.

⁴⁹*Early Man in Britain*, by W. Boyd Dawkins, p. 227.

⁵⁰*Les Cavernes et leurs habitants*, pp. 84-88.



EDITORIAL NOTES

HARVARD EXPEDITION TO SAMARIA.—“The Harvard expedition to Samaria has begun operations at the modern village of Sebastiyeh.”

GLASS IN ANCIENT EGYPT.—According to F. W. von Bising, Egypt was the only country where glass was manufactured before the Greek period. The earliest fragments bear the name of a king of the early dynasties, but the highest development took place during the XVIII dynasty.

PRESERVATION OF ANTIQUITIES IN PANAMA.—We are always glad to hear of interest taken in local antiquities, especially in less known regions. So it is with pleasure that we note that the Congress of Panama has appropriated \$5,000 for the purchase of “antiquities of stone, pottery, pre-Columbian jewelry and other objects representing the works of the aborigines of the American continent. Articles of the epoch of the conquest of the continent by the Spaniards, the civilization of that period, and samples of material products are also to be acquired for preservation in the museum.”

TWO COPIES OF GREEK ORIGINALS.—At the annual meeting of the subscribers to the British School at Rome, held November 17, 1908, “Mrs. Arundell Esdaile showed slides of two statues, one recently found and one unpublished, copied from a Greek original of c. 460 B. C., and representing a boy engaged in the worship of Eleusis.” From the peculiar ritual dress and attributes she connected them with the children which were every year chosen by lot from Eupatria families and initiated at public expense, performing expiatory rites and serving as mediators between the gods and the rest of the *mystae*.

THE LION IN ANCIENT ART.—In an article in *Le Musée*, O. Théatis traces the history of the lion in art, showing it to be one of the most frequently represented of animals. The oldest example cited, is an ivory statuette found at Abydos. It represents a lion crouching ready to spring. The lion is common in Assyrian art, but there it is usually in a rage, or in the agonies of death; or has been slain. The finest Assyrian examples are the lion-hunts in the reliefs from Nineveh. In Greece it is common in Mycenæan art. On through historic times it is frequently met with in architecture and elsewhere.

BEHEADING CORPSES IN EGYPT.—A. Wiedeman shows from Egyptian literature that in early times the Egyptians dismembered the bodies of the dead. This custom, although discontinued later, was probably the origin of the legend of the dismemberment of Osiris. Beheading of the dead lasted longer. Four out of 137 mummies examined by Wiedeman showed signs of having been beheaded before mummification.

ROMAN CAMP AT WEISSENBURG, GERMANY.—Excavations carried on at the Roman camp of Weissenburg revealed a camp about 570 ft. by 587 ft. with the corners rounded off. The 4 gates were protected by towers, and the whole was surrounded by a ditch. At the intersection of the roads from the gates, was a large building with 4 main compartments. A covered portico 164 ft. by 36 ft. was connected with it by 3 doors. Many nails of various sizes were scattered about the rooms. The inner surface of the enclosing wall was covered by white stucco.

ROMAN COINS FOUND IN NORTHERN FRANCE.—M. Bourée recently found a large number of Roman coins near Acquigny. M. Coutil, who has acquired the larger part of the treasure, has cleaned them so that it has been possible to determine the age of most of them. They belong to the middle of the III century and the first part of the IV century, and include, among others, one of Constantine, one of Diocletian and over 800 of Gallienus and Salonine. Many of these small bronzes have been thinly silver-plated, while others of the same age found at Evreux and Andelys were well silver-plated.

THE SITE OF CAPERNAUM.—E. W. G. Masterman argues for the identification of Capernaum with Tell Hum because "the ruins show that an important city once stood here and the synagogue that has been discovered was evidently a very important one; second, the site agrees with the Biblical references; third, it also agrees with the statement of Josephus; fourth, all the statements of the early pilgrims down to Quarismus in the XVII century favor the identification with Tell Hum; and, fifth, Jewish references identify Kaphir Nakhum with Kaphir Tankhum, which latter word has subsequently been corrupted to Tell Hum."

PROPOSED ARCHÆOLOGICAL PARK ON THE PALATINE.—Plans for the enlargement, improvement and sanitation of Rome have been perfected and brought before the public by Edmondo Sanjust de Teulada, a Sardinian. If sanctioned by the State, this plan will take 25 years for completion. This plan allows, in the main, for the preservation of the archæological treasures of the city; in fact, it provides for the excavation of certain of the monuments, as the Baths of Diocletian, and the laying out of an archæological park covering the

Palatine, part of the Cælian and the Aventine and the valleys between. The incidental gains to archæology from the accidental finds in the progress of the execution of the plan will probably be great.

BRONZE MIRROR.—At a meeting of the Society of Antiquaries in London on December 3, 1908, Mr. Reginald Smith exhibited a huge bronze mirror of the Early British period. It is a remarkable example of the late Keltic art and is a "kidney-shaped plate, engraved on the back with eccentric scrolls and basket pattern, and furnished with a delicately moulded handle with loop at the end. It rivals the specimen found with personal ornaments in a woman's grave at Birdlip, Gloucs, the latter being decorated with red enamel. Both are of the size and shape of an ordinary palm-leaf fan." The mirror under discussion was found at Desborough, Northants. The objects associated with it point to from 50 B. C. to 50 A. D. as its date.

ORIGIN OF THE IONIC CAPITAL.—G. Kawerau believes that the primary origin of the Ionic capital was constructive rather than ornamental. The volutes on the face were suggested by "the rounding off of the ends of a saddle-block, or short timber laid on the top of a post beneath the roof-sill, and whether the two spirals sprang separately from the lower edge of the block or were joined together along the top, was merely a decorative matter," as were also the dropping of the volutes below the top of the post and the attempt to ease the transition from the rounded shape of the front of the column to the straight line of the front of the capital by inserting another member or shaping the lower part of the middle of the capital.

NEW MEXICO AND THE SCHOOL OF AMERICAN ARCHÆOLOGY.—At a recent meeting of the Archæological Society of Santa Fe, New Mexico, the proposition of the Archæological Institute of America to establish at Santa Fe a School of American Archæology was thoroughly discussed. The proposition asks for no financial support from New Mexico, but does ask the establishment of a state museum of archæology in the Old Palace. A legislative committee was appointed as well as a committee to draft a bill or resolution for introduction into the legislature to embody the proposition of the Institute. It is expected that Dr. Edgar L. Hewett will be in New Mexico during the legislative session in the interests of the bill.

WORK ON DELOS.—The French Archæological School of Athens has been carrying on excavations at Delos under the direction of M. Homolle. An alluvial deposit made by the small stream Inopos on the northern part of the island was partially uncovered. It contained fragments of pottery from historic times. In a shaft sunk by M. Homolle on his own account, was found a molar tooth of a fossil elephant. Professor Boule, of Paris, considers it a tooth of *Elephas*

antiquus. The island is so small, only 3 miles long and in some places 0.16 of a mile wide, that an animal the size of *Elephas antiquus* could not have lived there, unless it were connected with other land, probably with the Ægean continent. Hence the separation of the Ægean continent into islands must have been a relatively recent event. The observations of the volcanic phenomena of the region bears out this conclusion.

THE NESTORIAN STONE.—In 1907 Mr. Frits V. Holm went to Sian-fu, Shensi, China, for the purpose of examining the Nestorian stone, hoping either to purchase it or to obtain an exact monolith copy of it. This stone, dated 781 A. D., is covered with an inscription in Chinese giving an account of the early labors of the Nestorians in China. It was accidentally found in 1625 and placed upon a pedestal.

At the time of Mr. Holm's arrival at Sian-fu, the stone was neglected and little valued by the Chinese. His interest in it made them suspicious, however, so that he found it impossible to obtain the original, but was allowed to have a copy made. This was brought to New York, and, on June 16, 1908, was set up in the Metropolitan Museum, where it will probably remain, although not the property of the museum. The original has now been removed to the "Peilin" or Forest of Tablets, where its protection and preservation are assured.

EXCAVATIONS AT KAPERSBURG, GERMANY.—At Kapersburg, L. and H. Jacobi have carried on excavations. A small fort, nearly square, was found with walls of loose earth and stones held together by logs. This seems to have been a temporary structure, replaced later by a fort 348 ft. by 390 ft. and defended by a double wall with earth between. Later still the fort was enlarged to 400 ft. by 440 ft. Part of the interior, the Prætorium, was laid bare. Its walls are of heavy masonry, while those of the Exercise Hall are of wood. The store house was identified by an inscription in the northeastern corner of the fort. The walls of the "Villa," a 5-room house, were covered with stucco. That the ancient name began with "N" is known from the inscription mentioned above; possibly it was "Nidensium." Some 117 coins were found, dating chiefly from the middle of the III century. The pottery seems to be from the latter part of the II century A. D.

BRONZE PORTRAIT HEAD.—Sir Lawrence Tadmor exhibited to the Society of Antiquaries a Roman bronze portrait head found in the spring of 1907 in the river Alde in Suffolk. He considers this one of the finest specimens of Roman portraits discovered since the Roman occupation. "The sculptor must have been one of the foremost among the many who worked in Rome during the Augustan era, and the head appears to be a portrait of one of the princes of the Augustan family, for it shows the characteristics of the portraits

accepted as representative members of that stock. The way the head was poised upon the neck suggested an equestrian statue, and the rough manner in which it was separated from the body, that it may have been destroyed and divided amongst the chieftains of some raid, each receiving a more or less equal quantity of metal as spoil. The Viking ship carrying the head may have been wrecked in the sands on the Suffolk coast and the head, through tidal action, have found its way up the river to the spot where it was found."

FIELD WORK OF THE INSTITUTE IN AMERICAN ARCHÆOLOGY.—Dr. Edgar L. Hewett reports that the field work of the Institute in American Archæology as laid out for 1908 was carried out. The work in Colorado "consisted in the excavation of the southern pueblo in the Cannonball group of ruins in the McElmo drainage." The ruin was completely excavated and all the material remains of the ancient inhabitants recovered. This is a good specimen of the ruins of the McElmo district, the first to be thoroughly and scientifically excavated.

The general work on the archæology of southwestern Colorado was continued. The photographic records of the Mesa Verde National Park and the archæological map were nearly completed. Similar work has been begun for the McElmo district.

In Utah, the Institute excavated the burial places and a portion of the main pueblo at Cave Spring in the Montezuma drainage on the southeastern slope of the Adapo Plateau. The results were very satisfactory.

MEETING OF THE ARCHÆOLOGICAL INSTITUTE OF AMERICA.—The Archæological Institute of America met in connection with the American Philological Association at Toronto, December 28 to 31, 1908. Five newly formed Canadian societies as well as a number of American societies became affiliated with the Institute. Among the most important of the proceedings of the meeting, was the approval of the offer made by the territorial government of New Mexico to give the Old Governor's Palace at Santa Fe for the permanent home of the School of American Archæology. It was also reported that the School at Jerusalem was on the way toward the acquisition of a home of its own. Among the papers read, was one by Professor Breasted, who has recently returned from the Nubian expedition of the University of Chicago, on the Temple of Soleb. He considers it a connecting link between the basilica-like construction of the Temple of Karnak and the ordinary structure of high pylon and lower walls that is seen in many Egyptian temples.

These two societies will meet jointly in Baltimore next December.

CHARACTER OF THE BLACK GLAZE FOUND ON GREEK VASES.—Oliver S. Tonks, of Princeton University, has been carrying on a series of experiments to determine the nature of

the black glaze on Greek vases. His conclusion is that the black glaze was "merely clay with soda and iron added—the former to help fuse it, and the latter to color it." Having determined this by chemical experiments, he went further, and tried to make a glaze, using clay from the potteries at Rocky Hill, New Jersey, which came from the Hudson valley. He found that it would fuse after the fashion of the Greek clay. Upon the addition of soda, it fused into a glaze, but had a brownish color, even after the addition of ferrous oxide, showing that there was too much ferric oxide present. Experiments with pipe-clay, which contains very little ferric oxide, brought better results. As pipe-clay occurs in the island of Naxos and as the Greeks are known to have used it on their white lecythi, it seemed a fair test to use it in the experiments. His work "proved eventually that a combination of 8 parts of nitrate of soda to one of clay, fritted together, and then mixed in the proportion of two parts of frit to one of ferrous oxide, produced a glaze identical with that on the Greek vases."

THE ROMAN FORT AT SAALBURG.—"In *Die Saalburg*, March, 1908, Lieutenant D. Ule gives an account of the present condition of the Roman fort at Saalburg. Within the wall a certain amount of ground on either side of the porta prætoriana still remains to be excavated. The modern museum has been erected upon the foundations of the horreum. The quæstorium has been rebuilt and is used for a library and for other purposes. Between the quæstorium and the porta decumana lies a fountain over which a roof has been built. Holes for posts show that it had a roof in ancient times. Various objects found at neighboring sites have been brought together in the museum. In the northeast corner of the fort remains of 4 Roman ovens exist. They are placed side by side, but one of them must have been disused at the time the other 3 were built. Holes for posts show that they were probably covered with a rude roof. Along the inner side of the east wall at a depth of about 4 meters (13 ft.) below the present level two rows of sockets for posts were found, and corresponding holes for roof beams in the walls. The purpose for which this building was used has not yet been discovered. R. Oehler thinks that it may have served for barracks."

EARLY INTERCOURSE BETWEEN GREECE AND ITALY.—In a paper before the subscribers to the British School at Rome, Mr. T. E. Peet contended that not enough attention had been paid to the connections between Greece and Italy thousands of years before the classical period. Excavations in Italy and Sicily are now bringing to light evidences of these relations. In Neolithic times two civilizations seem to have flourished side by side in Greece. One was in Northern Greece and Thessaly, as found at Chæronea; the other occupied the Ægean Sea with Crete as center, and probably the Peloponnesus also. In Sicily and Southern Italy, incised pottery

parallel to that of Neolithic Crete has been found. Such pottery, although not found in northern and central Italy, occurred in Sardinia and the district around Genoa. This would seem to indicate an ancient trade-route from the Ægean Sea to Sicily, and thence to Sardinia and the continent.

* A connection of Italy with northern Greece appears from the painted pottery, clearly imported, found in the caves and hut-foundations, of Matera and Molfetta, near Brindisi. This resembles in some respects those found in Thessaly and northern Greece. Probably there was a trade-route across the Adriatic from Thessaly or Epirus to southeastern Italy and also Sicily, as resemblances between painted vases of the early metal age indicate. In the rock-hewn cemeteries of the second Siculan period around Syracuse and Agrigentum, numbers of imported Mycenæan vases and bronzes were found. Trade with Mycenæan centers appears to have extended to the head of the Adriatic. Trade relations were cut off with the breaking up of the Mycenæan power, and were later reopened.



RESEMBLANCES AND DIFFERENCES BETWEEN THE ITALIOTS AND THE ETRUSCANS

At the second annual congress of the Italian Society for the Progress of Science, held in Florence in the autumn of 1908, Professor Luigi A. Milani, director of the Archæological Museum at Florence, read a paper on the *Resemblances and Differences between the Italiots and the Etruscans*. The report of this paper as given in *The Nation* for November 19, 1908, is so concise that it seems well to quote it at length:

"His address, in the opinion of such specialists as Pigorini, Pernier and Pasqui (recently appointed director of excavations at Rome), is a notable addition to our knowledge of the earliest Italian races. The Etruscan material of the early iron period exhibits analogies with that of the same period in the Emilia and the Veneto, especially in the methods of disposing of the dead in urns of the Villanovian type, and in objects placed in the tombs; but the differences and new elements are sufficiently marked to indicate a transformation of the Italiot civilization under the direct influence of another people of wholly different civilization, distinct customs, artistic expression, and religion. In developing his argument, Professor Milani made use of the rich resources of his museum and the most recent discoveries in Crete. He laid stress especially upon the ovoid and spherical receptacles for the remains of the dead; the *canopi* (cinerary urns bearing portraits of the deceased), which he regards as allied to Oriental death-masks; upon other urns found only in Etruria and Latium which

are unlike the Villanovian type and imitate thatched huts, houses, shrines, and temples, and resemble forms recently excavated in Crete; upon bronze covers in the shape of pileated and crested helmets and their earthen imitations; and upon covers shaped like round or oval shields—all forms which originally were peculiar to the earliest Etruscan sepulchres. The discovery of pre-Hellenic seals in Asia Minor, bearing the image of Sabekh, the warrior god of the Hethei, and the seal found at Ventulonia, no longer permit doubt as to the connection between the helmet with a crest or apex or priest's mitre and the cult of the Kureti or Cretan Dattili, or as to the introduction into Etruria in the most remote times of this mysterious pre-Hellenic cult, which runs back to the bronze age and belongs specifically to Ægean civilization. The conical shields typical of the Cretan Kureti are analogous in form and use to those discovered at Vetulonia and at Gassofortino, and to the twelve sacred shields trusted to the care of the Salii of the Palatine and Quirinal. Characteristic changes in methods of burial also point to the conclusion that, at a certain point in the development of Italiot civilization, a people who brought the Dattilic religion of the Ægean and that civilization which existed in Greece and Crete in the pre-Hellenic period, must have established themselves in Etruria. Evidence that the Etruscans originated in Asia Minor is furnished strikingly by the bark found in the tomb of the Duce at Vetulonia and by three *stelae* in the museum at Florence, the Aulo Elusukes of Vetulonia, the *stelae* of Larthi Aninies found at Fiesole, and that of the warrior Larthi Atharnies from Pomarance.

"The papers by Dr. Luigi Pernier of Florence on the *Latest Excavations at Festo* and the *Archaic-Greek City of Prinia in Crete*, by Cavalier Angiolo Pasqui of Florence on the government excavations which he has recently conducted at Monteleone, near Spoleto, and Dr. Giorgio Karo's report of the *Explorations of the German Archaeological Institute in Pylos*, incidently gave unexpected confirmation to Professor Milani's argument on the Etruscans. Prof. Antonio Taramelli of Cagliari gave a vivacious account of 6 years spent in investigating the primitive civilization of Sardinia. Signor Taramelli's papers will be published in the *Orientalist's* review, *Memnon*, and Signor Pasqui's in the *Notizie degli Scavi*, issued by the Accademia dei Lincei. Prof. Luigi Pigorini, whose semi-centennial of academic service was celebrated at Parma immediately after the close of this congress, spoke on the Civilization of Etruria during the Bronze Period of the Lake-dwellers of the Terramare, which awaits new excavations for an adequate solution of its problems. The section voted to ask the government to grant the necessary staff of assistants and the funds to carry out the plan which Professor Milani has already formulated. It voted also in favor of the extensive exploration of prehistoric fortifications of the type studied by Professor Pasqui near Spoleto."





ITALIAN PEASANT WOMEN ON THEIR WAY TO TOWN OVER
VIA PRAENESTINA



ROAD CUT IN THE SOLID ROCK AT GABII

RECORDS ^{OF} THE PAST

VOL. VIII



PART II

BI-MONTHLY

MARCH-APRIL, 1909



THE VIA PRAENESTINA

IT IS a matter of convenience and custom that visitors to Rome see only one of the many famous old military roads that centered at the Golden Milestone. The fading charms of that queen of roads, the Appian Way, still offer most of beauty and interest to the sightseer. From Casale Rotondo to the tomb of Cæcilia Metella one has ruined tombs on either side, and farther in toward Rome come the catacombs of St. Callixtus, the relics in the church of St. Sebastian, then the little church of Quo Vadis, and last, the gate through which St. Paul passed on his way to Rome. True, the gate was not built until some 200 years after Paul was dead, but the guide does not know that, and if he did, he would lightly scorn such a statistical attempt to rob him of his last and most thrilling piece of information. But in these 5 miles of Appian Way, one does not see a single stone of the Roman road, nor does one get an intimation of what a Roman road really looked like.

The Via Appia, however, is equalled, perhaps excelled, by at least one other of that system of highways which records the greatest achievement of Roman practical genius. This is the Via Prænestina. In its 23 miles from Præneste, the modern Palestrina, to Rome, this road has more of interest, shows better preservation, crosses finer bridges, and finally enters Rome at a more interesting gate than any other one of the Roman roads. The Via Prænestina gets its name from its destination, Præneste, that proud city always called the key



PALESTRINA, A WHITE SPOT AGAINST THE PURPLE OF THE SABINES

of Rome, because of its commanding position at the head of the valley which leads to Naples and southern Italy. The town has also often been called the Delphi of Italy, because of its famous temple to the goddess Fortune, *Fortuna Primigenia*. The modern town of Palestrina is built, in the main, on the site of its old temple, and is another of those many Italian towns which cling to the sides, or perch on the top, of the conical hills that fringe the Campagna, and look so white and cool and inviting—from a distance. Around most of the town, and up to and around the citadel on the summit of the hill, runs the same old Cyclopean wall which was there, when in 390 B. C. the Gauls captured Rome, the wall which Cicero's few men manned against Catiline, the wall which even in part withstood the stern mandate of the Pope in the XIV century, who, after capturing the town from the Colonna family, ordered that every stone be thrown down, and the city sowed to salt. That some of this ancient wall still remains, the accompanying illustration shows. It serves now as a foundation for a row of the city's houses.

The town of Palestrina¹ is built part way up the south side of Monte Glicestro, a conical-shaped mountain from which radiate some half dozen long ridges with intervening valleys. Just as the Via Appia runs along the top of a ridge formed by a stream of lava which flowed down towards Rome from the Alban hills, so the Via Prænestina runs along the crest of a similar ridge from Monte Glicestro. For about 4 miles, however, the ancient and the modern roads coincide, and only here and there by the side of the road, or cropping up through it, does one see the huge stones of the ancient way. There is one stretch for nearly a mile where not a vestige of the old road is to be

¹The day before Easter, 1907, I walked the whole length of the Via Prænestina from Palestrina to Rome, and the illustrations here shown are from photographs which I took that day.



A FENCE OF LAVA BLOCKS TAKEN FROM VIA PRAENESTINA

found. It was on this very stretch that I chanced to meet several groups of the peasant women who were bringing in great baskets of vegetables, or shelled corn and eggs, to exchange for cloth and spaghetti. They were trudging stoutly along in their heavy shoes, short skirts, and outside corsets, their baskets balanced safely on their head pads. One party of 25 or more was singing, an old woman in front with a deep voice leading a chant, the rest keeping up the reiterated response, "Ora pro nobis," as long as I could hear them. It is small wonder that where ancient and modern roads coincide the former are covered up or let alone, for the paving stones of a Roman road are so big and heavy that they cannot be moved easily, but in some places where they have been taken from the ground, they can still be seen serving other purposes than that for which they were fashioned. Not far from Gallicano, one could almost be persuaded that the old Via Prænestina had decided to stand on edge. For quite a distance a roadside fence is made almost wholly from the stones of the old road.

About 4 miles from Palestrina the ancient road comes suddenly to view, breaking out from under the modern road nearly at right angles, and plunges rather steeply down into the valley toward the

southwest, in order to cross a little stream by the Ponte Amato, which is one of the finest of Roman bridges in existence, a true Roman arch bridge in splendid preservation, and all ancient except three new stones at the top of the arch. The accompanying illustration shows the ancient paving stones in the old road just below the spot where it turns sharply from its straight course along the ridge. It will be noticed how the modern fence and wall on either side preserve the line of the ancient property rights. The bridge in the middle foreground of the illustration is the Ponte Amato just mentioned, while



PONTE AMATO, BY WHICH THE VIA PRAENESTINA CROSSES A RAVINE

the one to the right is a concrete affair of more recent date over which run the modern aqueduct and post road from Zagarolo to Galliciano. The ancient road, after crossing the bridge, climbs slantingly half way up the farther ridge, and dives through a deep cut, made as early as 250 B. C., and comes out upon a splendid view over miles of rolling Campagna. Soon after the road emerges from the cut, part way down the slope it crosses the line of a modern road, which could claim a greater antiquity than the Via Praenestina itself, for it is the very



A SECTION OF VIA PRAENESTINA

road which was one of the main trading routes up the Trerus valley, past Tibur, and on to the north.

The next 10 miles of the Via Prænestina show the finest piece of Roman road paving anywhere in the vicinity of Rome. That this long stretch of pavement has been left untouched by the greedy road or street constructor, is due undoubtedly to the fact that it is rather too far from any modern road to make it pay to excavate and transport the blocks. The long black line threads its way off towards Rome, its polished surface glinting strangely in contrast to the grayish white of the barren waste of the Campagna; ten miles of a mighty reminder of Rome's former greatness and pride, stretching its band of hewn lava across the undulating Campagna, now lost and forgotten to everybody but the archæologist and the shepherd. Once clear of the cut, and across the modern thoroughfare, our road bends slightly away from the tips of several parallel ridges in exactly the direction to give one a fine view of the upper course of the two aqueducts which with their arches form the most famous of the ruins in the Campagna near Rome. There these two aqueducts, the Claudia and the Anio Novus, run one above the other on the same arches, but out here, they run side by side, tunneling the parallel ridges and bridging the valleys. But soon the road loses sight of the aqueducts, running on mile after mile up and down over the undulating country, affording

only two unchanging views, that of the line of the Sabine mountains to the right, and the town-spotted slopes of the Alban hills back to the left, granting sometimes for a moment off down a sweeping valley a glimpse of broken villa walls, or the dim outline of an aqueduct against the horizon. With every step something new, something strange; nothing the same except the monotony of desolation and loneliness. Ten such miles, however, give one an unforgettable idea of the way Rome built her roads, great lava blocks, faced on one side, often 3 or 4 ft. either way across the top, and 2 ft. thick, nicely graded and set in a prepared bed of concrete another foot or more in thickness. One sees the very ruts in the stones, and can be sure that they were made in part by the wheels of the heavy baggage wagons which Sulla took out to his camp before Præneste, when he besieged the younger Marius there, nearly 2,000 years ago. The road looks rough. It is. It was not made for the light wheels of pleasure chariots, but for the rapid march of Rome's legionaries, and for the safe conveyance of great wagons of baggage and rations. Rome's military roads were the finest thing she ever built.

Midway between Rome and Præneste was a town called Gabii. It was Rome's earliest ally, and became of great strategical importance as an outpost against the Latins. In fact, the road I am now describing came out from Rome only as far as Gabii, and was called the Gabinian way, until the paramount importance of Præneste, to which it was later extended, gave its name to the whole road. Gabii occupied rather a peculiar situation in comparison with the rest of the Latin towns of any importance, for they were located on hilltops of some prominence. True, Gabii is fairly high, relatively, above the immediate country, but very low when one takes into consideration the level of the Campagna. Round a depression like a shallow volcanic crater there runs a narrow ridge, and at each end of the higher eastern side is a small plateau. Here was situated the town of Gabii, its citadel connected with the lower and more extensive part of town by a causeway cut along the top of the ridge in the solid rock. Gabii still deserves the slur cast upon it by the Romans for its desolate appearance. There is nothing there now but the mediæval tower and the miserable little hamlet of Castiglione. The Emperor Augustus used to go occasionally to Præneste for a few weeks, to enjoy the cool air, and, to give countenance to the once famed town of Gabii, he used always to leave Rome late enough so that he could stay over night there. The present King of Italy sometimes whirls out to Palestrina in his automobile to see some of the new archæological finds there, but the modern road sweeps around the ancient site of Gabii, and poor Castiglione gets none of the light of its sovereign's smile. The old Via Prænestina, along which our present quest takes us, skirts the low ridge where now all that remains of ancient Gabii is the causeway and a ruined temple, and the old quarries which supplied Rome with so much of the famous building stone, *lapis Gabinus*.



HOUSE FOUNDATIONS 2,500 YEARS OLD

Two miles beyond Gabii the modern road joins the ancient one, and for the rest of the way to Rome only chance bits of the old paving are seen. There are, however, several fine old cuts through the tufa ridges and hills, and several huge tombs in picturesque dilapidation. But whenever there is a valley to be crossed, then we find the old Roman bridge still there, and in good condition, too, for they were built to last, and they have needed small repairs these 2,000 years. The largest and finest of these bridges is the seven-arched Ponte di Nona, so called because it was near the ninth milestone on the road. As one comes on into Rome along the modern macadam road, which is as much dustier than the ancient as it is smoother, the domes and towers of the city show ever clearer against the evening sky, until about a mile from the city walls the road sinks into a wide depression, and Rome is lost to view, until suddenly, after a dismal mile between high vineyard and house walls, at the turn, the fine old Porta Maggiore looms up into view.

When the Emperor Aurelian found it imperative to have a new wall around Rome, and that quickly, he planned its course so that he could utilize everything that was along the line. The splendid arches



PORTA MAGGIORE AND THE BAKER'S TOMB

that carried the three aqueducts, Marcia, Tepula, and Julia, one above the other, were just the thing he wanted, as all that was needed was simply to wall up the openings. This was done, and an opening left for a gate, wherever a road passed under an arch. At this Porta Maggiore two arches were left to make a double gate for two roads, one being our Via Prænestina, that divided just inside the line of the new city wall. Above the gate still remains a large section of the channels of the three aqueducts. One can plainly see the openings where the water used to run. Outside the gate, between the two roads, a wealthy baker had chosen a site for his wife's tomb, and decided to have not only a novel mausoleum, but to combine devotion with a bit of advertising. The object with the 9 round holes in it in the foreground of the illustration is an exact reproduction of his finest bread baking oven. On this tomb he had carved this inscription: "Here lies my wife. She was the best woman that ever lived. Her remains I have put in this bread basket!"

One looks with amazement on the high double gate, and the strange tomb, and with envy on the man who sits there eating luscious Italian figs, but passes on through the gate, and suddenly realizes that the Via Prænestina is behind him, and that after all it is only another road that leads to Rome.

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DISCOVERY OF A STONE CIST IN ONTARIO

A UNIQUE archaeological discovery—unique so far as Ontario is concerned at least—was that of a stone cist on the farm of T. M. Edmondson, near Streetsville, in Peel County (about 22 miles west of Toronto), in the fall of 1906. So far as we know, stone cists have been found only in Tennessee, Illinois, at points on the Delaware river, and in northern New Mexico.¹ Unfortunately, no human remains were found in the Streetsville cist, so it cannot definitely be said whether it was intended for purposes of sepulture or not. However, it has every appearance of being the work of human hands.

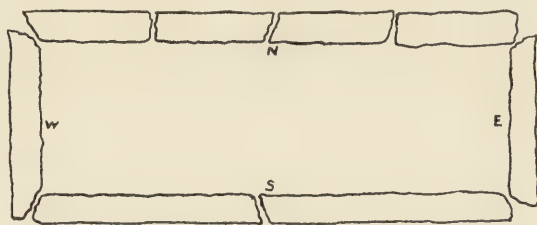


DIAGRAM OF THE STREETSVILLE CIST

As is shown in the accompanying diagram, one side of the chamber was formed of 2 slabs and the other of 4 slabs, while a single slab closed each end. The space enclosed was about 7 ft. long and a little over 1 ft. wide at the bottom. Owing, no doubt, to outside pressure of the earth, the side slabs inclined inward at the top, and were only about 6 or 8 in. apart. The depth of the chamber was $4\frac{1}{2}$ ft., and the floor was of clay. There were no cap stones, but these may have been removed in the course of cultivation years ago, and without discovering the side slabs whose tops were on a level with the surface of the ground. Perhaps, too, the structure had never been covered.

The stones are all limestones, and similar stones are numerous in the locality; the banks and bed of the Credit river being limestone. Mr. Boyle, the Provincial archaeologist, who examined the structure in May, 1907, says that the slabs bear no marks of any attempt to shape them. On one or two of them he found glacial striæ,

¹Attention might be called to an article on *Cairns or Stone Sepulchers of British Columbia and Washington*, by Harlan I. Smith, which appeared in *RECORDS OF THE PAST*, Volume III (1904), pp. 243-254. [Editor.]

and fossils on others. "Three of the stones," says Mr. Boyle, "were more columnar in shape, with roughly rounded ends uppermost, but these had been removed, and their position in the structure was not clearly noted when the first opening was made."²

It seems significant that the general direction of the longest diameter of this cist is east and west, this being the case with many similar structures in the United States, although excavations carried on by the Bureau of Ethnology have shown that cists, as well as uninclosed bodies in mounds, were generally placed without regard to direction.

No material of human workmanship was found in the cist or in its vicinity—not even an arrowhead or a potsherd. If something of this nature had been met with, one could have formed some opinion as to its age—whether it is prehistoric or modern. Considering, also, that the bottom of the cist is clay, "it may be," as Mr. Boyle says, "that had a human body ever been placed in it, the remains have become wholly assimilated with the clay, but this is not at all likely."

It is to be hoped that further discoveries of a similar kind will be made, and that there will be an opportunity for Mr. Boyle, or some other capable archæologist, to make an examination as soon as possible after the discovery.

W. J. WINTENBERG.

Toronto, Canada.



MORE ABOUT THE "NEW SERPENT MOUND IN OHIO"

IN THE *American Anthropologist* for October-December, 1908 (pp. 703-704) Mr. Harlan I. Smith, of the American Museum of Natural History, New York City, denies the reality of the New Serpent Mound described in the RECORDS OF THE PAST for September-October, 1908, and figured in the following number from the survey of Dr. Metz.

First, Mr. Smith bases his denial upon the ground that Col. Charles Whittlesey, in "*Descriptions of Ancient Works in Ohio*," published in Vol. III of *Smithsonian Contributions to Knowledge*, Washington, 1850," gives a map of this area in which no serpent mound appears, and in his description says nothing about such a mound. Colonel Whittlesey's survey was made in 1839. This map Mr. Smith characterizes as "the most accurate published map of this site of which" he is aware.

Colonel Whittlesey's testimony would be of the very highest authority if it were explicit. But, in describing the map which he

²*Ontario Archæological Report* for 1907, p. 30.

furnished to the Smithsonian Institution, he says, "The survey was made under circumstances that did not allow of a minute measurement of all parts of the work. Some of the details are given from an eye sketch, and this obstructed occasionally by a snowstorm" (p. 8). Of course, a map made under such circumstances cannot be adduced as evidence of any value. It has, however, perhaps been the means of diverting subsequent attention from the object.

Secondly, as noted in our paper, Mr. Smith himself visited the mound with Dr. Metz in the fall of 1892 after the survey had been made in the previous June, when they together made a cross-section of the embankment lying in the woodland. Mr. Smith says in the *American Anthropologist* that his "personal explorations were confined to that portion lying within the maple forest * * * in fact [he says] I did not even attempt to trace the other embankments." It is difficult to see how such negative testimony can be of any value in the face of Dr. Metz's actual survey and of the testimony of the Committee of the Ohio Archæological Society who last fall examined the grounds under most favorable conditions and bear positive testimony to the facts as Dr. Metz has represented them.

Mr. Smith further states that "the people of the vicinity seem not to have been aware of their [portions of the mound in the meadow] existence, although they had been under cultivation for more than half a century." This statement we had positively contradicted in our original paper, calling attention to the fact that Dr. Scoville, of Lebanon, had published an account of it in a Cincinnati daily paper, and that it had been known and visited by local authorities for a long time.

In view of these facts, we cannot see why Mr. Smith should be moved to say, "There are so many mistakes in this article [in the RECORDS OF THE PAST], and it is so generally misleading, that it seems a duty to place on record the facts in the case for the benefit of future students who may not be familiar with the relative value of the testimony relating to this site." It is Mr. Smith, and not we, who has made the mistakes, and it is his statements that are likely to mislead the guileless public. The publication by the Smithsonian Institution of an imperfect map made by Colonel Whittlesey from memory of what he saw in a blinding snowstorm has probably misled many others besides Mr. Smith; while Mr. Smith's publication in the *American Antiquarian* for September, 1892, of his positive opinion based upon an examination of only half the phenomena has still further misguided the public. Such misrepresentations should not be allowed to go without correction.

G. FREDERICK WRIGHT.

Oberlin, O., March 4, 1909.



ENTRANCE TO THE TUNNEL AT GEZER, FROM THE NORTH
From Palestine Exploration Fund

WORK OF THE PALESTINE EXPLORATION FUND AT GEZER DURING 1908

IT WAS toward the end of 1907 that Mr. Stewart Macalister discovered the remarkable distinct tunnel, the entrance to which had been covered up for some 3,000 years, and which had then apparently been in use for more than 1,000, possibly nearly 2,000 years; and it was only at last, after clearing out the debris of centuries, that he found that it led down to a large cavern with a spring of water. Cut through rock with flint tools, this great tunnel, 23 ft. to 18 ft. high by 13 ft. wide, with its 80 steps, is the most remarkable work hitherto discovered of the inhabitants of Palestine in a remote antiquity. If Mr. Macalister's inference from the depth of debris at which the entrance was found be right, the very existence of the tunnel had become unknown before the time of Solomon.

The problem remains, "How did its constructors know that they should come to a spring?" One most curious fact, pointed out by the learned Père Vincent, is that a local tradition, mentioned long ago by Clermont-Gauneau, connects Gezer with the flood, which is said to have gushed forth from the "taunûr" (oven) of Gezer. Due west of the tunnel, and under 30 ft. of debris (representing 8 strata of distinct building epochs), was also found a remarkable cave. As only 3 of these strata are later than the destruction of the inner city wall



ROCK SCRIBINGS FROM GEZER
From *Palestine Exploration Fund*

about 1450 B. C., we are carried back to a high antiquity. The special interest of the cave lies in the "scribings" which occupy the upper surface of the walls. Some are mere lines at random, some dots arranged with method, others attempt the representation of animals. It is these last which are most interesting as drawings by an early race of men. They bear a strong resemblance to those in other places in Europe and elsewhere, recognized as the work of a race of the Palæolithic epoch; but as they represent fauna of a subsequent period, it is assumed that they were executed by men of the Neolithic age.

Another discovery has been a singular example of foundation deposit, below the foundation of a building contemporary with the XII



THE ZODIAC TABLET FROM GEZER

From Palestine Exploration Fund

Egyptian dynasty. The skeletons of two men are placed, at length, side by side, and the upper half of the skeleton of a lad 16 or 17 years of age. This body had been cut in half above the pelvis, as in the case of a girl whose remains were found, some time before, in a cistern on the eastern hill of the city. In the present instance various earthen vessels had been placed about the bodies, as if for food.

It has always been a hope of the Society that the Gezer excavations might produce some such collection of written tablets as those at Tel el Amarna; but very few of such documents have been found, and these for the most part imperfect. The Zodiac tablet, so called, is the clay impression from a Babylonian cylinder seal. It has interested

many scholars, several of whom have contributed notes on it. The opinion seems to be that it may be of the Tel-el-Amarna period, possibly much older.

Another tablet, found at the close of the year 1908, was of limestone inscribed with Hebrew characters of probably the VI century B. C. or possibly much older, as Prof. Lidzbarski supposes. He says: "We have, perhaps, the oldest Hebrew inscription, at all events, one of the oldest of the Semitic inscriptions." It enumerates the agricultural occupations for several months, as "month of the first harvest," "month of the sowing," etc. Unfortunately, the edges are broken, so that it is incomplete.

A great variety of other small objects has been found; personal ornaments, pottery of various kinds and dates, and objects of alabaster and metal. Among the most curious of the pottery objects was the lower portion of the model of a shrine, the upper part being broken away. It to some extent resembles the Egyptian "soul-houses" which Professor Petrie described to your readers in July, 1907*. It was found in a deep stratum with other remains dated about 2,000 B. C.

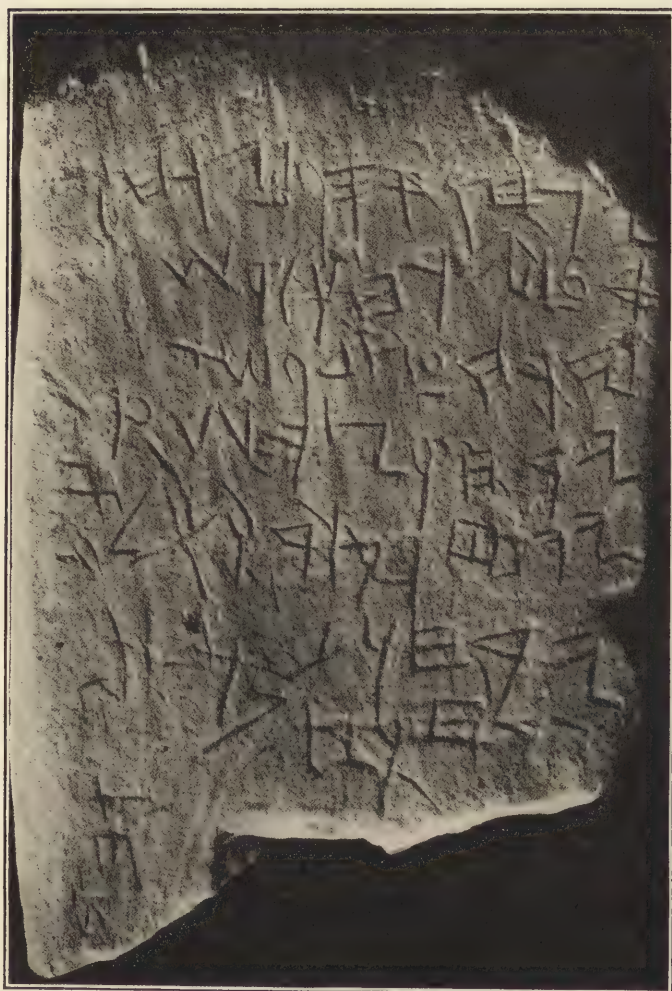


LEAD WEIGHT FROM GEZER

Two inscribed weights were found. One of lead, nearly square, was inscribed in Greek with the name of the "Renter of the market" and the date, "The year 33" of the Seleucid era, equivalent to B. C. 279. This lead weight has the distinction of being the only object actually *inscribed* with a date as yet found at Gezer.

It is unfortunate that, by the Turkish law, all objects found in excavating have to be given up to the Turkish authorities. The Palestine Exploration Fund strictly observes this law; but it deprives the Society of the great advantage which would accrue from exhibiting the objects in London. However, the best of them will find a place in the Imperial Museum at Constantinople, which has been much enlarged lately, and is becoming one of the most important in Europe.

*See RECORDS OF THE PAST, Vol. VI, pp. 195-201.



THE HEBREW TABLET FROM GEZER
From *Palestine Exploration Fund*

The Society's *Quarterly Statement* has, during the past year, contained many interesting articles, fully illustrated, in addition to Mr. Macalister's *Reports*, and those of experts on some of his "finds." One on the *Fisheries of Galilee*, by Dr. Masterman, should interest naturalists. Mr. Jennings-Bramley's account of the *Bedouin of the Sinaitic Peninsula* (among whom he lived for some time); Miss Gladys Dickson's papers on *Palestine Folklore* and on a local *Christian Treatise on Astrology*, and papers by other writers are all full of curious information. Mr. Dickie, who worked with Dr. Bliss a few years ago, has again visited Jerusalem, and carefully recorded the latest facts ascertained relating to Constantine's buildings in connection with the Church of the Holy Sepulcher; Dr. Masterman has described *Masada*, where the Jews made their last stand and were massacred; and Mr. Spyridonidis, the Greek architect, contributed a plan and photographs of the church erected in Crusader times, over

Jacob's Well. Altogether, subscribers to the fund get ample material to interest them.

By the time this note is published, the Imperial permit for excavating Gezer will have expired, the great trenches will have been filled up, and the evidences of its long antiquity, after yielding up much knowledge of its ancient occupants, will again slumber under the protecting earth. The committee are already considering the selection of another site for examination.

J. D. CRACE.

Palestine Exploration Fund,
London and 42 Quincy St., Cambridge, Mass.



THE HIGH ARTISTIC POWER OF PRIMEVAL MAN

PROOF of the high intelligence of the earliest men is shown by their *artistic power*. Sir George Bell wrote a most valuable work,⁵¹ on the human hand, showing that it was the masterpiece of mechanical design. But the hand is more than this, it is the instrument which reveals the power and the glory of the human mind. Thus the charms of music, the wonders of sculpture, and the beauties of painting are all revelations of the grandeur of the human mind. The hand executes the purposes of the mind, and the hand of the ape reveals none of these marvels, because the animal does not possess the contriving and reasoning mind that is in man. Here is a genuine *crux* for all materialistic theories of evolution, and an impassable barrier between man and the lower animals. The ruder the instruments of the artist are, the more remarkable is his intelligence, if with such rough tools, he produces an accurate picture of the objects he copies.

The artistic skill of the earliest men is shown in two directions. First, by their *carvings*, and secondly, by their *engravings*.⁵² Their carvings were chiefly executed in ivory or reindeer horn, and were generally representations of animals. Figures of the mammoth and the reindeer, admirably carved out of horn or ivory have been brought to light from the caves of Bruniquel, Laugerie-Basse, and Mas d'Azil, in Central France and the Pyrenees.⁵³ The ivory and reindeer horn are carved to represent the animals with marvelous fidelity, the per-

⁵¹*Bridgewater Treatise*.

⁵²See an admirable account of these in the Proceedings of *The Smithsonian Institution* for 1898, by Mr. J. Wilson, entitled *Prehistoric Art*.

⁵³*Les Cavernes et leur Habitants*, by M. J. Fraipont, pp. 159, 160.

fection of Primeval Sculpture being said to be the head of a horse carved out of reindeer horn, and discovered in the cave of Mas d'Azil by M. Piette.⁵⁴ The carvings and statuettes of men and women in ivory are equally striking, those found in the cavern of Brassempouy in Western France representing the individuals *clothed*, and wearing a head-dress like an ancient Egyptian wig.⁵⁵ The drawings are equally remarkable. These are engraved on reindeer horn, slabs of slate, and plates of ivory. They portray figures of animals such as the reindeer, elephant, aurochs, horse, seal, bear, and fishes. We will select two specimens only. Upon a portion of reindeer horn, found in the cave of Montgaudier, are carved two gigantic serpents, their scales being depicted with surprising fidelity, and the convolutions of their bodies being engraved with an artistic skill which is most astonishing.⁵⁶ The other is an engraving of such beauty that it is admitted to be the finest specimen of prehistoric art. It is carved on a fragment of reindeer horn, and represents a reindeer feeding with its head upon the ground. The symmetry of the form and of the limbs is perfect, whilst the beauty of the head and of the horns cannot possibly be surpassed.⁵⁷ Of a similar excellence are the drawings of fishes, seals, bears, and whales, while the leaves of branches of trees are depicted with wonderful faithfulness and beauty. The *pictures* engraved on slabs of slate or horn are equally remarkable. One represents a man hunting an aurochs, the exactness of the picture of the animal being most wonderful. Another depicts a man attacked by a gigantic serpent. So marvelously correct and graphic are these engravings, that Professor Boyd Dawkins says of them in admiration: "The most clever sculptor of modern times would probably not succeed very much better if his graver were a splinter of flint, and stone and bone were the materials to be engraved."⁵⁸ This wonderful artistic power was entirely confined to the earliest men, and it died out with their disappearance. The men of the Neolithic Age, who succeeded the primitive men of the Quaternary Period, were neither artists nor sculptors. Also the men of the still later Bronze Age could not draw; it was only amongst the *oldest* men, who flourished at the *beginning* of the human race, that we find artistic perfection! Here is an unanswerable proof, of the high intellectual power, and of the lofty genius of the earliest men. Drawing, painting, and carving are proofs of the grandeur of the human intellect, and that these acquirements were possessed in such a high degree by the earliest men demonstrates that the *very earliest* human beings were as far removed from apes as are the cultured

⁵⁴*La France Préhistorique*, p. 71.

⁵⁵*Bulletin de la Société d'Anthropologie de Paris*, November-December, 1894.

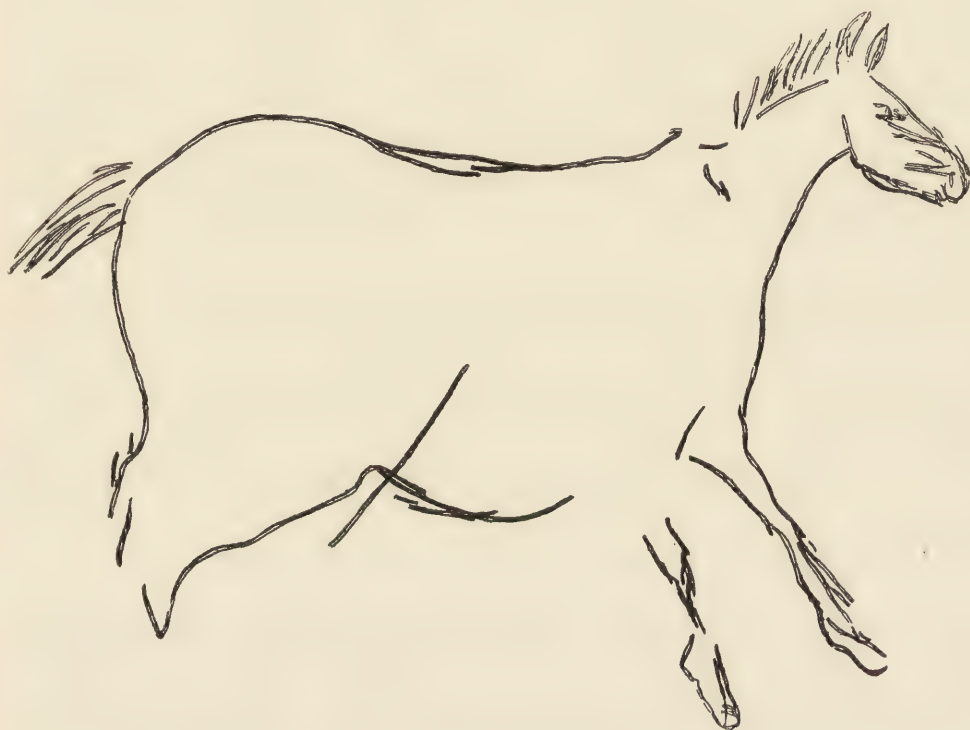
⁵⁶*La France Préhistorique*, p. 82. See RECORDS OF THE PAST, Vol. II, pp. 243-253, *The Mastodon and Mammoth Contemporary with Man*. The Lenape Stone and the Mammoth Carving from La Madelaine are here illustrated. Also see the illustration of Rock Scribings from Gezer, p. 79 of the present issue.

⁵⁷*Excavations at the Kesslerlock*, P. M. Merk, Pl. xii.

⁵⁸*Cave Hunting*, p. 344.

artists and sculptors of the present day. Rude and wild men, such as the Eskimo,⁵⁹ the Australians, and the Bushmen, draw and paint even now, but the earliest men far surpassed them all in artistic power.

One of the most difficult, as well as interesting of all the problems relating to the earliest men who lived in the Quaternary Period, is to decide whether they had any religion. Any evidence for this must of course be *indirect*, since we cannot expect to discover any traces of shrines, sanctuaries or ritual worship, whilst no traditions can possibly



HORSE ENGRAVED IN THE GROTTO LA MOUTHE

have descended to us from those far distant ages. It has been stoutly maintained that primitive man had no religion,⁶⁰ but the statement is a mere guess, and rests upon an utterly worthless foundation. Two statements alone are put forward to support it. The *first* is, that the lowest savages, who represent the state of primitive man have no religion, and therefore the earliest man must have been also devoid of religious belief. There are two errors here. Instead of the most degraded of savages representing the earliest state of man, we now know that they are the descendants of cultured ancestors. It is false

⁵⁹See a paper in the *Smithsonian Institution's Transactions* for 1897 by J. Hoffman, entitled *The Graphic Art of the Eskimos*.

⁶⁰By M. de Mortillet in *Le Préhistorique Antiquité de l'Homme*, p. 474.

also to say that the most brutal races of mankind have no religion, for it is now acknowledged that they are possessed of real religious beliefs. *Secondly*, it is affirmed that as religion is a *growth*, the earliest men could not possibly have possessed it. To this it may be replied that religion may have been a supernatural revelation, and as such may have been felt and practised by the very first members of the human race. But this must be decided by *evidence*, and we have to show that the discoveries of prehistoric archæology furnish us with proof that prehistoric man, in the Quaternary period, was, after all, not destitute of religion.

To begin with the way of burial in the earliest ages.⁶¹ The body was dressed elaborately and laid out with care. The face was painted, and the funeral robes were adorned with elaborate ornaments. Food was placed in the sepulcher, and weapons were deposited by the side of the deceased, to be used by him in another world. All this shows that primitive man believed in the immortality of the soul, and, as a necessary consequence, he must have acknowledged future rewards and punishments, dispensed by a supreme being.

Fetichism, as practised by the natives of Western Africa, and which attributes supernatural powers to sticks, stones, and brilliant objects, has been considered to be the lowest form of religion.⁶² This, however, is now known to be a complete mistake. The negroes of West Africa believe in one Supreme God, who created all things, who is also omnipotent and omniscient, and has a multitude of inferior deities under him.⁶³ Thus Fetichism is really *not* a low form of worship, but the expression of a lofty religious faith. Dupont found in the cave of Chaleux in Belgium a solitary bone of a mammoth lying among ashes and by the side of flint knives. From this he concluded, that the men of the time brought the bone into the cavern to worship it, as the mammoth was then extinct in Belgium.⁶⁴ This is a complete error, for later discoveries have proved that the mammoth was then living over the whole of Northern Europe. The numerous representations of animals such as horses, reindeer, and serpents, carved on the implements of the earliest men, have, with great probability, been considered to be totems,⁶⁵ representing the animal forms of the guardian spirits of the various tribes. Above all this, however, the American Indian believes in a Supreme God, to whom the lower spirits, represented by the totems, are subordinate. Such, it is very likely, was the faith of the earliest men.

⁶¹The burials in the caves of Frontal, Duruthy, and Mentone prove this.

⁶²*Prehistoric Times*, by Lord Avebury, 6th Edition, pp. 556, 585.

⁶³See Max Müller's *Hibbert Lectures*, pp. 107, 108, and *The African Sketch Book*, by Winwood Read, Vol. II, p. 131.

⁶⁴*Étude sur les Cavernes des Bords de la Lesse et de la Meuse*, 1865, p. 21.

⁶⁵This idea is well worked out by Sir J. W. Dawson in his *Fossil Men*, Chap. ix.



DEER ENGRAVED IN THE GROTTO LA MOUTHE

The worship of the Sun is supposed to have been practised by the earliest men in the Quaternary Period, and some facts may be brought forward in support of this theory. M. Rochebrune states that all the caves which he explored in the Charente (France), which had been inhabited by primitive man, opened to the northeast.⁶⁶ This he declares was because the earliest men were sun worshippers, and chose for their habitations only those caverns from the mouths of which they could see and worship the rising sun.⁶⁷ This opinion is supported by the fact that on the plateaux, primitive man also selected for his places of abode, only those localities from which the rising sun was visible.⁶⁸ The sun, with rays spreading from its disc, was frequently carved on the staffs of office used by the earliest inhabitants of Northern Europe. Thus, M. Piette found in the cave of Gourdan in the Pyrenees, a disc pierced with a hole in the center, from the circumference of which proceed diverging lines.⁶⁹ He also discovered the same sign engraved three times on a wand of office or commander's baton, and concluded from this that it was an image of the Sun God. Possibly the baton was the wand of office which was carried by a priest

⁶⁶These caves are all in the basin of the Tardonère.

⁶⁷*Memoirs sur les Restes d'Industrie aux Temps Primodiaux de la Race Humaine recueillis dans le Département de la Charente*, par A. J. Rochebrune, pp. 26, 27.

⁶⁸*Ibid.*, p. 28.

⁶⁹Quatrefages in his *Human Species*, p. 328, describes this relic.

of the sun. M. Girod also figures a similar carving of the sun with diverging rays, which has been found in the cave of Laugerie-Basse in the Dordogne.⁷⁰ In these carvings the sun is represented in precisely the same manner as it is engraved by the North American Indians in the present day. These indications of sun worship are too numerous to be ignored, and they connect the rude worship of the men who hunted the elephant and rhinoceros in Northern Europe, with the most elaborate religious rites of ancient heathenism. The worship of the sun was in the earliest times identified with the adoration of the Supreme Being, and was probably the earliest form of idolatry, while it was practised simultaneously with the adoration of minor objects, such as trees, mountains, and various animals.

It is also interesting to note, that the earliest men whose relics have recently been brought to light, were not improbably worshippers of the serpent. In the cave of La Madelaine in the Dordogne, MM. Christy and Lartet found a part of a reindeer's horn, on one side of which was engraved a striking picture.⁷¹ A figure of a man occupies one end of the drawing, and his right hand is raised in a striking attitude. A horse stands close by his side, and another horse is behind the first, its head being turned towards the man. Immediately behind the man, is a gigantic serpent, which is the most prominent figure in the picture. It seems to be on the point of attacking the man, its attitude being most threatening. There are parallel lines around the serpent, which may perhaps represent the waves of the sea. What is the meaning of this remarkable picture, which was engraved by the men who hunted the elephant, the lion, and the rhinoceros, in Northern Europe? MM. Christy and Lartet declare that they are unable to understand it. Professor Boyd Dawkins thinks,⁷² that it portrays a man hunting horses, and that the serpentine figure represents a gigantic eel! This does not seem at all a probable solution. The horses are standing close by the man, and going *towards* him, which would not be the case if he were attacking them. They are clearly not *wild*, but *domesticated* horses. The serpentine figure cannot be an eel as it is too large, being three times the size of the man. Besides this, the eel being harmless, would not be drawn attacking the man. So small a creature as the eel would not be engraved at all. Sir J. W. Dawson suggests another explanation of the picture.⁷³ According to him it represents the migration of a man from the seashore, to an inland region, where he hunted wild horses. This solution cannot be accepted. The horses are going in a *different* direction from the man, and the explanation entirely passes over the threatening attitude of the immense serpent. The

⁷⁰*Les Invasions Paléolithiques*, Pl. xx.

⁷¹*Reliquiæ Aquitanicæ*, Book II, p. 16, Pl. ii.

⁷²*Early Man in Britain*, p. 214.

⁷³*Fossil Men and Their Modern Representatives*, p. 266.

engraving evidently represents a man sacrificing horses to the great serpent-god, and the parallel lines behind and around the serpent, mingled, as they are with vertical strokes, probably are intended for trees, in order to show that the sacrifice took place in the midst of a forest. This view explains everything in the picture, the serpent-being threatening the man because the serpent-divinity is offended at the man's conduct. Another striking proof of serpent worship in the earliest ages is found in the baton of Montgaudier.⁷⁴ This is a fragment of reindeer horn, which evidently belonged as a wand of office either to a chief or a priest. On one side of this baton two monstrous serpents are carved, their bodies, tails, and scales, being engraved with beautiful exactitude. Again, MM. Christy and Lartet found a figure of a serpent with its mouth open, and its scales depicted, in one of the caves of the Dordogne.⁷⁵ Now, why should the serpent be engraved on the wands of office used by the earliest men who inhabited Northern Europe? Certainly *not* because of its size, for in those days the actual serpent in those regions was most insignificant. The carved serpents are clearly *mythological*, and represent the Serpent Divinity. The worship of the serpent has been practised in all the human races, and must have been a rite performed from the infancy of humanity, in fact before the earliest men divided into distinct races. Fergusson, our greatest authority on the subject, states that it began on the banks of the Euphrates,⁷⁶ and he also declares that it is the oldest, and was at one time the most prevalent form of worship. Possibly it originated from a recollection of the temptation, in the Garden of Eden. The earliest men, therefore, that science shows to us were probably sun worshippers and serpent worshippers combined, and these two forms of religion have been constantly united in ancient and modern times. The semi-civilized Indians in Arizona and New Mexico worship the rattlesnake and adore the sun, and the same combined worship of the sun and the serpent prevailed amongst the Aztecs at the time of the Spanish conquest. Still earlier the Mound-builders of North America adored a gigantic serpent which they represented in the earthworks, as is witnessed by the great serpent mound, at Brush Creek, in Adams County in Ohio, which is 700 ft. in length.⁷⁷ A similar serpent mound, of immense antiquity, exists in Western Scotland.

The numerous carved and ornamented reindeer horns, which have been found with the relics of the earliest men in the caverns of France and Belgium, have been thought to be scepters of the chiefs, or wands of office, and have been called "batons of command." Sir William Dawson thinks,⁷⁸ however, that they were part of the implements of

⁷⁴Figured by Cartailhac in his *La France Préhistorique*, p. 82.

⁷⁵*Reliquiæ Aquitanicæ*, Pl. xxiv, p. 159, Fig. 4.

⁷⁶*Tree and Serpent Worship*, pp. vii, 36.

⁷⁷*Prehistoric America*, by the Marquis of Nadaillac, p. 126. RECORDS OF THE PAST, Vol. V, 1906, p. 119-128.

⁷⁸*Fossil Men*, p. 337.

the priests or "medicine men" of that time, or might have been used to beat the sacred drums as is the custom of the Shamans of Northern Siberia. If this is an indication that primitive man practised a religion allied to Shamanism, it proves that the earliest men held a pure and lofty religious creed, for the Shamans believe in one Supreme God, who has his dwelling in the highest heaven.⁷⁹

Be this as it may, it is now clearly demonstrated that primeval man had a religion. The possession of religion is a characteristic of man *alone*. The lower animals, however they may approach man in some elements of their physical structure, cannot have a religion, for their nature is incapable of comprehending or of practising it. It is plain therefore, that, by the possession of religion, the earliest men were as far removed from apes as are the men of the present day.

The admissions of the materialists regarding man's origin, and early condition, are truly extraordinary. They confess that in the present day no animal can be found connecting man and the apes. They admit, also, that the oldest men which geology reveals to us, were as far removed from apes as are the men who are living now. They acknowledge that no fossil ape has been found from which man could have descended.⁸⁰ Lastly, they admit that no intermediate forms between man and apes have been found in the very formations, in which, if their theory is true, they ought to have been discovered in great numbers! What have they to say in reply? Merely to *guess* that Tertiary man may some day be discovered, and to *assume* also that when he is found, he will prove to be more degraded than his brother Quaternary man! This dreaming and guessing is not science, and we merely reply in the words of Dr. Samuel Johnson: "He who will determine against that which he knows, because there may be something which he knows not,—he that can set hypothetical possibility against acknowledged certainty,—is not to be admitted among reasonable beings."⁸¹

We might produce further proofs of the mental greatness of the earliest men. We might describe their physical structure, their large brains, their robust constitutions, and their commercial activities. But it is needless. The subject need be discussed no further. Man was in the earliest ages the *lord of creation*, and the child of God. So it is now, for man is ever the same. However degraded man may be, the seal of the Divine Hand is upon him, and the witness of the Divine Nature is within him. His religious emotions, sadly perverted though they may be, lift his soul to One above. His marvelous imagination testifies to a genius which is not of this world. His conscience demonstrates that he is under a moral law, and is responsible to a Supreme Judge, who will call him to account for his

⁷⁹*Through Siberia*, by J. Stadling, pp. 137, 138.

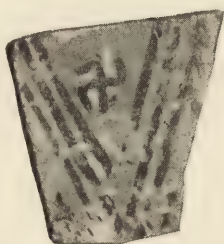
⁸⁰*Pithecanthropus Erectus* of Dubois from Trinil in Java has collapsed in the most complete manner.

⁸¹*Rasselas*, Chap. xlviii.

actions. While his all-embracing reason, sweeping the very heavens in its flight and penetrating to distant worlds, proclaims in accents that can never be misunderstood, that he was made by God, must live for God, and is destined to enjoy the fellowship of God in an eternity of glory.

D. GATH WHITLEY.

Baldhu Vicarage, Scorrier, Cornwall.



SWASTIKA FROM KUL TEPE

NOTE ON THE SWASTIKA IN ASIA MINOR

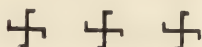
SUPPLEMENTING the exhaustive article on this curious symbol of luck in *RECORDS OF THE PAST*, Vol. VI, pps. 236 ff., any observant resident of Asia Minor can testify to meeting occasional instances of the use of the Swastika on objects from the very earliest to the most recent times. It appears on rugs and saddle-bags. Not long ago I found a beautiful example in a neglected mosque yard carved on a marble stone beside an ox-head, and there was probably another Swastika originally on the other side of the head. A similar stone in the same village had two well-cut ox-heads with garlands or wreaths thrown over them, suggestive of the heathen honors offered Paul at Lystra, *Acts*, xiv: 13, consisting of sacrificial oxen and garlands. At Tash Keupru there is a medresse, or Turkish school, the material of which seems to have been gathered from the work of earlier hands, several Greek inscriptions being built into the walls, while over the door there is a clear-cut Swastika. Visitors to St. Sophia in Constantinople see abundant Swastikas on the walls of that building, which was erected under the brilliant Justinian, who became emperor 528 A. D. A friend of mine recently found in Sinope a beautiful though broken Swastika on a vase probably belonging to Roman art, and to be dated not long after the Christian era.

To go back to the days of Troy Dr. Schliemann's Swastika finds are famous. But the accompanying picture carries one vastly further

back—if there is no mistake. The original is on a fragment of pottery belonging to the Anatolia Archæological Club, and is painted as are the lines which also appear, with a dark brown pigment. The fragment of pottery is from Kul Tepe, near Cesarea Mazaca, and on the basis of cuneiform inscriptions found there and deciphered, Prof. Sayce lecturing at Oxford in May, 1907, pronounced the city to belong to the age of Abraham and Hammurabi. It was an Assyrian settlement transmitting the culture of Mesopotamia to Asia Minor. This bit of brickwork, therefore, was probably made and decorated about 4,000 years ago, and shows that the universal symbol of good luck was at that early day known and used in central Asia Minor.

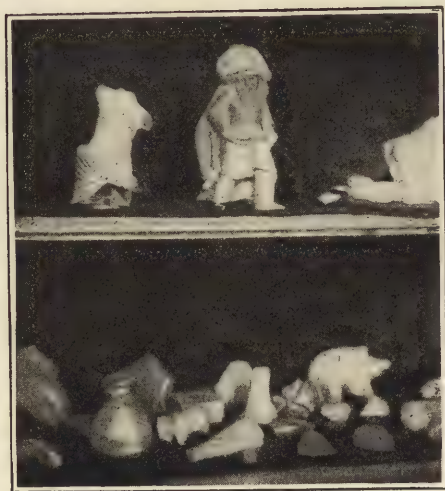
GEORGE E. WHITE.

Marsovan, Turkey-in-Asia.



VOLK'S WORK IN THE TRENTON GRAVELS.—Some of the most valuable work which has been done in this country relative to the solution of the problem of Glacial Man, is that of Mr. Ernest Volk, of Trenton, N. J. Unfortunately, his light is hid under a bushel because of the lack of funds for publishing the results of his 20 or more years of almost continuous effort. Regarding his work we will quote from the last report of the Peabody Museum of American Archæology and Ethnology of Harvard University:

"The researches in the Delaware Valley have been continued by Mr. Ernest Volk, who has carefully examined many excavations made in the gravel deposits and has worked with his trowel over a considerable space of the exposed sections. Several unquestionable implements of chipped stone have been found *in situ* in the gravel and further evidence has been obtained to prove that implements are found which are of the same age as the gravel deposit. It is only by such long-continued and painstaking work as Mr. Volk is engaged in that the much-discussed subject of the presence of palæolithic implements in the Trenton gravels is being settled; and for his persistence and conscientious labors to ascertain the exact facts and truth, American archæologists cannot be too grateful. The Museum has a full report from Mr. Volk, covering over 20 years of exploration in the Delaware Valley since he began his work under the direction of the Curator. The report is accompanied by a large number of photographs of the gravel sections, sand pits, and also of stone implements, and a human bone, and fragments of antlers, shown *in situ*, with diagrams and drawings. This full and important report should be published by the Museum, and it is regrettable that there are no funds available for the purpose at present."



OBJECTS FROM KUL TEPE

KUL TEPE

A FEW miles northeast of Cesarea Cappadocia, is a mound, which for many years, has yielded an occasional object of interest, to the archæologist, said objects being sold in the market place of Cesarea, or sometimes, turning up in the Constantinople bazaars.

This mound, which is called Kul Tepe (or hill of ashes), has never been properly excavated, and its contents have been for many years so disturbed and disarranged, that it will be a difficult task to make a scientific investigation. The peasants of the district use the earth of this mound as a fertilizer,—bringing away wagonloads of it, from one side or the other, and spreading it on their fields, every spring and fall. Then, if they happen to notice pieces of pottery, carving, or inscribed tablets in the earth (all badly broken usually by their careless spades) they pick these out, and sell them in the bazaars to whomsoever will buy.

Just gathering up a few things in one summer, spent in Cesarea, I have objects from so many different times and civilizations as to be quite bewildering. Perfect and beautiful celts of flint, and black stone, and even of jade—quantities of whorls, and of animals' heads and legs, in clay of all kinds and colors—are in my collection. There are many pieces of vases and dishes; several tablets inscribed in Cappadocian cuneiform; and Babylonian weights in hematite. The latter, are declared by Professor Carl Lehmann of Berlin, to be good Babylonian weights, one a gold shekel, and the other a half silver-shekel. There is one exquisite little bas-relief of a lion (4 cm. long), evidently



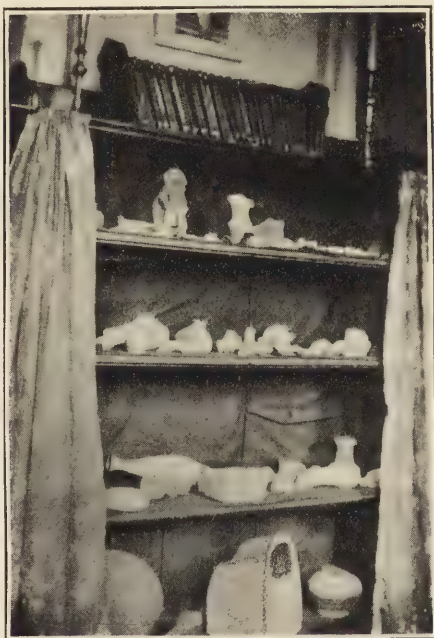
FIGURINES FROM KUL TEPE

Clay Head and a Figure Like a Asiatic Figure Carrying Bas-relief of Lion on Right.
 Gargoyle, an Ornament of an Altar a Greek Lady Clay Head, with Crown, to the Left

Assyrian or Hittite, in fine red clay. And there is a seal cylinder of black marble, with Hittite pigtailed figures on it. One of these figures is spearing a dragon, and two seem to be smoking a pipe of peace (or would seem to be doing so, if there had been smoking in Hittite days). Then there are many bits of artistic clay work from Greek times—some of evidently the V century, B. C., and others, Hellenistic, Roman, and even Seljukian—all jumbled together in this place of memories. There are jars of clay, and glass bottles found in Kul Tepe, and among them there are what have been called “huts” of clay—such as the one on the lower shelf in the picture given (p. 95). Since some of these contained ashes, and a few bones more or less carbonized, it is supposed they were meant for human remains, and, like the Egyptian “soul houses,” are to be the place of some “shadowy existence after death.” At least such is the opinion of Ernest Chantres, who describes such a cinerary urn found at Kul Tepe. This French archaeologist made a journey through Cappadocia in 1893-4 and published a book on it in 1898. He heard of this mound, and took picks and shovels and 20 men to dig, and spent a few days in examining what he could of the mound. He made 6 trenches, and found beds of ashes, and great quantities of pottery, also enormous blocks of lava and scoria. Under the surface he found debris, which showed there had been walls and basements of houses. Very few large stones appeared; the houses had evidently been built of rubble, and clay or cement from the neighboring marshes. He found what seemed to be ramparts, like those at Tiryns and Mycenæ. The mound was about 20 metres in height, and 480 metres in diameter. There were some old cuttings which showed chambers 50 or 60 metres in size.

The classic name of Cesarea is Mazaca, but Ramsey and Sayce and Maspero, and others who have written on Cappadocia, consider that the Assyrian name of this city is Kus-da. In Assyrian tablets Kus-da is the place from which come horses and mules. Chantres thinks that this mound must be the remains of the older cities, before the Græco-Roman era when Mazaca became famous. He says that Scheil has published some tablets from Constantinople, which confirm this idea. And Professor Sayce has written lately of Kul Tepe, as an outpost of the Babylonian Empire.

Besides the many distinctly Assyrian, Babylonian, and Hittite objects found here, there are many clay figures, and vases, which are



OBJECTS FROM KUL TEPE. ON THE LOWEST SHELF IS A "SOUL HOUSE" OR PLACE FOR ASHES

like those found in Greece and the Greek Islands. In my collection there is a very finely executed head of Silenus (about 4 cm. in height) and a woman's figure partly draped, of good workmanship.

One of my Kul Tepe figurines is of so unique a character as to deserve further description. It represents a man, bearded, and clothed in trousers and a rolled girdle, carrying (perhaps over a muddy road) a woman, who comfortably places her hands on the servant's head, (if it is a servant), and whose body is partly supported by a roll of cloth, forming a sort of sling. The woman is as unmistakably Greek as the man is Asiatic. Her head is gone, and the figure is blackened with fire. But the hair of the man's beard, and the lines in his face

are delicately and finely executed, and the face has character. The man is 14 cm. high, and the whole group would be about 18 cm. if the woman's head were in place. Whether these figures represent some legend connected with the Istar cult, or some other religious scene, or simply a common domestic happening, I do not know.

Among my Kul Tepe objects are several parts of birds, in clay and stone, and two decorations of rows of birds, conventionalized. Whether they are Hittite eagles (some certainly are eagles), or the doves sacred to Istar, is not always plain. Chantres says that no swastika was found at Kul Tepe, but I have a piece of red clay with a very plain swastika on it—about 3 cm. square. There are here also a number of little moulds of stone, one of which has the figure of a bird cut on it.

There are many beads or ornaments of chalcedony and other stone—some finely cut,—one with ridges, cut in it regularly, and then filled with a sort of white enamel, showing finely on the black stone.

When such a varied assortment of objects come from one ancient mound, does it not seem as if careful investigation might here discover what would make a complete history of ancient civilization, and add more to our knowledge of the close connection between Assyria and Egypt, and between the Hittite and the Ancient Greek?

ISABEL FRANCES DODD.

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LEADEN TOKENS FROM OXYRHYNCHUS.—Mr. J. G. Milne in a paper on *Leaden Tokens of Roman Times recently found at Oxyrhynchus*, Egypt, divides them into two classes; one with the bust of Athena on the obverse, and Victory on the reverse; the other with Nilus on the obverse and various representations on the reverse, as Athena, Surapis, Horus, Abundantia, Pietas, etc. From some of the billon (an alloy of gold and silver with a large proportion of copper or other base metal) and bronze coins found at Oxyrhynchus during 5 seasons, it appears that from the time of Augustus to Severus Alexander, the predominating currency there was bronze money, while from that time to the time of Diocletian, this was entirely superseded by billon money. A large number bear the initials of Oxyrhynchus, and dates such as are found on coins of Alexandria of Roman times, hence it seems possible that they served as token money from the middle to the end of the III century A. D. Mr. Milne considers these different from the ordinary lead tickets which were in common use in Egypt beginning from the time of Augustus for admission to games, commercial purposes, etc.



CALUMETS OR PEACE-PIPES

CALUMET

IN THE annual report of the Smithsonian Institution for 1897 Joseph D. McGuire has a paper on pipes which may be considered as authority as far as the pipes of the aborigines are concerned. Although tobacco at the present time is cultivated in nearly every country on the globe, it is known that it is indigenous to North America, and the islands of the Gulf and the coast. Columbus on his first voyage speaks of the people of Hispaniola as smoking, though the reference appears to relate to something in the nature of a cigar. He says, "The messengers found a great number of Indians, men and women, holding in their hands lighted brands of herbs of which they inhaled according to their custom." The natives of San Domingo called the wrapper or pipe in which the herb was placed *tobago* or *tobacco*, hence the specific botanical name tobacco. The Brazilians are said to have called the herb *petun*. Father Vimont (1642) speaks of giving visiting Iroquois some petun, or tobacco, and to each a handsome pipe to smoke it.

On a triangular piece of land bordered by Lakes Ontario, Erie and Huron dwelt a branch of the Huron Iroquois nation (whose prin-

cipal source of revenue was the raising of tobacco) whose Indian name was Tionontaties, but were called Petuns or Tobacco Nation by the French. Undoubtedly the aborigines cultivated tobacco in a primitive way, and smoked the "herb" as cigars or in tubes of stone or clay. Many of these tubes are found among the relics of the Mound Builders and of their descendants. In the history of the Conquest of Mexico by De Solis (1684) mention is made of the incensing of Cortez by the Ambassadors blowing the smoke of herbs toward his person from tubes held in the mouth.

There is no doubt that tobacco was cultivated by the Mexicans in a limited way prior to the Spanish Conquest. Afterwards the Spaniards put the natives to work growing tobacco for which there was a constant and increasing demand.

Catlin, writing in 1833 says "The luxury of smoking is known to all of the North American Indians in their primitive state, even before they had any knowledge of tobacco. In their native state they are excessive smokers and many of them would seem to be smoking one-half of their lives. There are many weeds and leaves and barks of trees that are narcotics, and of spontaneous growth in their countries, which the Indians dry and pulverize, and carry in pouches and smoke to great excess—and which, in several of their languages, when thus prepared is called Kinnikinik, and seems to consist of the inner bark of the sweet willow, which is first dried and pulverized by rubbing between the hands, and used with sumac."

The introduction of tobacco into England in 1589 is popularly attributed to Sir Walter Raleigh, but the facts are that it was introduced by Sir Ralph Lane, who was sent out by Sir Walter in 1585, returning in 1589 from his disastrous administration. It is said, however, that he had learned to smoke tobacco in Virginia and taught Raleigh. When the servant of the latter saw his master enveloped in smoke, supposing him to be on fire, dashed a pail of water over him. Raleigh, however, taught Queen Elizabeth to smoke.

The word Calumet, meaning peace-pipe of the Indians, is not an Indian word, but a corruption of the French word Chalumeau. The French gave it that name from a fancied resemblance to a Chalumeau, a long flute, or a blow-pipe.

Father Gravier describes the peace-pipe or calumet—"It is ornamented with the heads or necks of various birds, whose plumage is very handsome. They also add long feathers of green, red and other colors with which it is entirely covered." Gravier visited the Illinois in 1696. Father Lalumet in 1645 speaks of a Calumet made of pewter in the hands of the Hurons. Father Paul Raqueneau, in 1651, speaks of sending a stone Calumet to a Monsieur Couillar.

Van Curler gives the Mohawk name for tobacco as *Jank-u-ran-que* and for pipe *Ca-no-nou*. Marquette in his first voyage to the Illinois describes them as a warlike tribe, "who know no iron or

copper and have only stone knives." In speaking of the Calumet he says, "There is nothing more mysterious or more respected among them. Less honor is paid to crowns and sceptres of kings than the savages bestow upon this. It seems to be the god of peace and war, the arbiter of life and death. It has to be but carried upon one's person, and displayed, to enable one to walk through the midst of



LARGE CALUMET. PROBABLY THE JOHNSON-IROQUOIS CALUMET

enemies, who, in the hottest of the fight, lay down their arms when it is shown. For that reason the Illinois gave me one, to serve as a safeguard among all nations through whom I had to pass during my voyage. There is a Calumet for peace and one for war, which are distinguished solely by the color of the feathers with which they are adorned. Red is a sign of war. They also use it to put an end to

their disputes, to strengthen their alliances and to speak to strangers. It is fashioned from a red stone polished like marble and bored in such a manner that one end serves as a receptacle for the tobacco while the other fits into the stem; this is a stick two feet long, as thick as an ordinary cane, and bored through the middle. It is ornamented with the heads and necks of various birds, whose plumage is beautiful. To these they also add large feathers—red, green and other colors—wherewith the whole is adorned. They have great regard for it because they look upon it as the Calumet of the Sun and in fact, they offer it to the latter to smoke when they wish to obtain a calm, or rain or fine weather.

"They scruple to bathe themselves at the beginning of summer, or to eat fresh fruit until after they have performed the Calumet dance."

The material of which the bowls of the pipes spoken of above were made has been called, since 1832, catlinite for George Catlin, who discovered the cliff from which the Indians obtained the small blocks which they used to make pipes, Calumets and small ornaments.

An early writer says, "This red stone is found between layers of quartzite at Couteau des Prairies, Minn."

However, Catlin is the best authority on this material. He says, "The red stone of which these pipe bowls are made is, in my estimation, a great curiosity; inasmuch as I am sure it is a variety of Steatite (or soapstone) differing from that of any known European locality, and also from any locality in America, other than the one from which these pipes came; and which are all traceable, I have found, to one source; and that source as yet unvisited except by the Indians who describe it, everywhere, as a place of vast importance to the Indians, given them by the Great Spirit; for their pipes, and strictly forbidden to be used for anything else." [The fragments, however, seem to have been and are now, used for making beads and small ornaments.] [See Richmond Collection.]

The red stone from which Calumets are made is found in the celebrated Pipestone Quarry in Pipestone County, in the southwestern corner of Minnesota. An early account of this locality says, "There was a high bluff in which was a mass of red stone flecked with pinkish white, like porphyry, with this difference, that this of which we speak is soft as tufa. (It is said to be harder than gypsum but softer than marble.) It is covered with quartzite, and is found in layers about two inches thick. The stone works easily and resists a hot fire."

Referring again to the Calumet and its uses:— Sir William Johnson at a meeting of the Six Nations on February 23, 1756, gave them the largest pipe in America, made on purpose, and said to them: "Take this pipe to your great council chamber at Onondaga; let it hang there in view, and should you be wavering in your mind at any

time, take, and smoke out of it, and think of my advice given with it, and you will recover and think properly." And on July 23, 1758, in the proceedings of a council with "Pontiac" and Chiefs of the Ottawas, Pottawattamies, Hurons and Chippewas, the Chiefs being all seated, Sir William Johnson caused Pontiac's pipe to be lighted, which, being handed around by the interpreter to all present, he addressed him.

On September of the same year, at Fort Johnson, N. Y., the Mohawks of both castles, the Oneidas, Cayugas, and two Seneca sachems with the River Indians met in council, and sent to acquaint Sir William that they proposed to deliver the message agreed upon on the 18th to the Cherokee deputies. When Sir William came in and all were seated, the 4 Cherokees were introduced to the Council by Captain Montour, and taking seats in 4 chairs placed purposely for them, Sir William lighted the Calumet or pipe of peace and friendship, and after smoking a whiff, presented it to the 4 Cherokee deputies, holding it to them while each took a whiff, then the gentlemen present took it and Mr. Montour handed it to every Indian present. The tobacco from whence it was filled was put into a bag to be carried home with the Calumet by the Cherokees. As showing the then existing international jealousies, a desire was expressed at this meeting to keep a knowledge of it from the French.

Mention is made above of the Calumet presented to the Six Nations February 23, 1756, which was said to be the largest pipe in America," and again in 1758 at a very important treaty with the Cherokees, I have said that the Calumet of the Iroquois was *held to each* of the 4 Cherokee deputies to take a whiff and that the tobacco with which it was filled *together with the Calumet was given to the Cherokees to take home with them.*

The Calumet illustrated above came into my possession a few weeks ago. It is certainly a very large pipe, being 6 1-2 in. long, 6 in. high and the circumference of the bowl 10 in., weight 5 pounds; the largest Indian pipe that I know of. It is of granite and was once highly polished, but having been buried in the soil it shows signs of erosion and corrasion and its polish is lost except on one side. It was found on the bank of the Savannah River, *and in the Cherokee country*, after the disastrous flood in the South, during the month of August, 1908.

No man knows, no man can tell, whether it is the Sir William Johnson's Calumet or not, but I am inclined to claim that it is the largest Indian stone pipe in America, and unless a larger pipe is brought forward, the Johnson-Iroquois Calumet.

Incidentally, I will call to your mind that the Cherokees were Iroquois, that is they spoke the language of the Iroquois.

W. MAX REID.

Amsterdam, N. Y.



FIG. 1. LOOKING NORTH THROUGH THE WOODS TO EXTREME NORTHERN SUMMIT SHOWING MOUND IN FAR MIDDLE BACKGROUND. THE ROTTING STUMP IN FOREGROUND, A LARGE WHITE OAK, ONCE GREW ON MOUND OF OBSERVATION

Photo by H. Gates

TRACES OF A VANISHED RACE IN KANDIYOHI COUNTY MINNESOTA

ON ITS northwest shore, and south of where the south fork of the north branch of Crow River enters Green Lake, rises a series of densely wooded morainic hills swelling to a height varying from 50 to 125 ft., above the present water level. Ascending these hills boulders of red or gray granite, striated and moss grown, are now and then met with, thrusting their bulk through the till, while under the thick vegetable mold are found many fragments of water-worn rock.

An artificial mound, with trees of all sizes and ages growing out of it, is found on the summit of every one of these hills. So far, but three of these "summit mounds" have been opened and but one, in a measure, adequately excavated, owing to various retarding circumstances; but, even imperfectly as the work has been extended, the results thus far give promise of much that will be of interest.

In Fig. 1 we have a photograph taken from the summit of one of the higher hills of the group mentioned, looking through the intervening woods to the farthest hilltop north, where its mound



FIG. 2. CLOSE VIEW OF MOUND SEEN IN THE FAR MIDDLE BACKGROUND OF FIG. 1. NOTE THE NUMEROUS GROUPS OF TREES GROWING ON IT

Photo by H. Gates

is dimly visible closing in the center background. The rotting stump in the center foreground is that of a large white oak, formerly growing out of the northern declivity of the mound whence this view was taken.

Should we walk to this other summit we would find large trees in clustering groups flourishing out of the mound itself (Fig. 2). These trees, though large and vigorous, are the lusty successors of lustier sires, judged from the decaying remnants of an earlier forest encountered in digging up the mold.

The highest and largest "summit mound" of the series (Fig. 3), at an elevation of 125 ft. above Green Lake, is seen in the accompanying illustration. It is noteworthy that, from the undisturbed center of this mound springs the large and dense growth of trees seen in the middle foreground, while other groups close in upon it from all sides but the east.

These three mounds the writer hopes to open at an early date. They are at a higher elevation than the three opened on this side of the lake in 1907. Of these latter, the one shown in Fig. 4, yielded the most satisfactory results.

This mound was opened September 9, 1907, by the Rev. Anthon T. Gesner, of Faribault, Minn., and Mr. P. D. Gates, of Milwaukee, Wis. It is on the apex of a hill rising some 86 ft. above the

present water level, bearing the trees seen in Fig. 4, the center one of which is growing a little east by north of the middle of the mound.

After clearing away a thick layer of vegetable mold, and at a depth of more than 2 ft. beneath this cleared surface, the excavators uncovered over 25 boulders of various sizes arranged as shown in Fig. 5. This photograph was taken at 5:30 p. m., September 9, on a rainy evening, and before a stone of the structure had been disturbed. We are thus enabled to view this ancient hearth or altar just as its Amerindian builders left it.



FIG 5. HEARTH OR ALTAR, IN SITU, ONCE SUBJECTED TO INTENSE HEAT.
DISCOVERED IN CENTER OF MOUND, OVER 2 FT. BELOW SURFACE

Photo by H. Gates

We speak of it as hearth or altar; for it had been exposed to long continued and intense heat. Such of its stones as were not burnt red, were reduced to lime, or, otherwise calcined; while the surrounding earth was baked to the depth of several feet by the fires once glowing upon it. On the stones being carefully removed fragments of calcined bone and bits of charcoal were found in the interstices of the lower layers—these latter partially buried in a conglomerate of ashes, vitrified sand, and clay.



FIG 3. THE HIGHEST SUMMIT MOUND OF THE SERIES, FROM THE EAST. OUT OF ITS CENTER GROWS A THICK GROUP OF TREES, AND OTHERS COVER NEARLY ITS ENTIRE AREA

Photo by H. Gates



FIG. 4. SUMMIT MOUND. THE STONES OF ALTAR OR HEARTH REMOVED FROM TRENCH, SEEN ABOUT BASE OF TREE GROWING ON MOUND NEAR ITS CENTER

Photo by H. Gates

Fig. 6 shows a vertical section of the north side of the trench—where a root of a tree, extending from the right horizontally to the white stone at the extreme left, marks the depth of the apex of the hearth from the cleared surface of the mound. At the north edge of the trench are piled the stones just as they were removed from their original position.

Further excavations were continued, and, at a depth of over a foot beneath the site of the first hearth, and after penetrating through soil burnt to a brick-like toughness, the remains of a second hearth were uncovered. Most of the boulders composing it being limestone,



FIG 6. PORTION OF NORTH SIDE OF TRENCH. HORIZONTAL ROOT EXTENDING TO WHITE STONE MARKS UPPER SURFACE LEVEL OF HEARTH BELOW THE GROUND

Photo by H. Gates

the fires had reduced a majority of them to fine powder, and numerous others to lumps of pure lime. (Fig. 7.) This second hearth or altar lay almost under the east half of the first one uncovered; but separated from it by over a foot of vitrified soil.

From this point westward the trench was dug $2\frac{3}{4}$ ft. deeper, until vestiges of what was regarded as the site of a third hearth were reached. Here the pick laid bare much disintegrated limestone mixed with burnt clay and fused fragments of quartz,

granites and schists. In the illustration (Fig. 7) this spot is indicated in the center of the immediate foreground, and at the deepest point of the excavation.

It is very evident that at the remote period when these mounds were erected, very few, if any of this morainic group of hills bore timber or undergrowth of any description. They form at their northeastern extension a peninsula, corresponding with, and exactly opposite to, the one jutting into the lake, on its northeast side described in our first paper. [Vol. V, pp. 271-281.] This mound site on the northwest side of the lake is washed on its northeast side by the lake itself,



FIG. 7. REMAINS OF A SECOND HEARTH OR ALTAR UNCOVERED AT DEPTH OF OVER A FOOT, AND A LITTLE TO THE EAST OF THE FIRST. MANY OF THE STONES CALCINED AND OTHERS FUSED BY THE HEAT. SUPPOSED SITE OF A THIRD HEARTH INDICATED BY CALCINED SPOT IN IMMEDIATE FOREGROUND

Photo by H. Gates

and on the northwest by the Crow river. In the period treated it was a much larger and deeper stream than now.

Whether the fires kindled on these summits were (a) for incineration of the dead; or (b) connected with heliolatry and human sacrifice or torture; or (c) for the preparation of food at certain tribal gatherings and feastings; or (d) whether these hearths pertain to earthen huts, whose walls caving in after abandonment, form now the super-

incumbent soil; or (e) the flames rising from these bare summits were beacons or signal fires flashing their messages over miles of lake and prairie, is left an open question.

As to the conjecture under (a) and (b)—that the mounds may have served as funeral pyres, or, were connected with heliolatry, human sacrifice or torture—no remains of bones have been found—calcined or otherwise—that can be, with certainty, identified as human; while, as to the theory advanced under (c) and (d), that the mounds so far excavated (Fig. 7) may have been a rendezvous for tribal gatherings and feasting, or the ruined sites of abandoned earthen huts, there is no corroborative evidence, either in the characteristic and ever-present refuse heap, contiguous to such spots, or other collateral vestiges of such use or habitation. There remains, however, the supposition under (e), or (b), which would make this site excavated that of a signal fire or torture mound. There is about as much evidence for as against this theory at this present stage of the investigation.

Not until all the hilltops in this group are thoroughly and systematically excavated, and possibly not even then, will sufficient data be available for a solution of the problems of which these particular traces of a vanished race are suggestive.

HORATIO GATES.

The Rectory, Willmar, Minn.



ANOTHER PALAEOLITHIC IMPLEMENT AND POSSIBLY AN EOLITH FROM NORTHWESTERN MISSOURI

BOTH of these recent discoveries are from the west slope of the bluff of the Missouri River, and special interest may be justly claimed for them because they are not from the loess but from the glacial drift which ante-dates it. The palæolith was purchased from the discoverer by an enthusiastic local collector, Mr. Geo. Y. Hull, and reported to me with a description of the locality and circumstances of the find. The facts as stated may be accepted with confidence. The date was about the middle of July, 1908, the exact day not being remembered; and the locality was the public road to the village of Amizonia at a point about 8 miles north of St. Joseph. This is known as the River road to distinguish it from one following the hilltops and called the Bluff road. The River road closely follows the base of the bluff and marks the limit of the rich black alluvium of the old flood-plain or "bottom land." In wet weather vehicles sink to such a depth in the soft mud that this road becomes entirely impassable, so it seems almost superfluous to state that any article of considerable density would require little time to work down many



VIEWS OF THE BLUFF NEAR AMIZONIA WHERE THE PALÆOLITH WAS FOUND

inches beneath the surface. In the early part of the summer of 1908 the condition was improved in places by slightly raising the grade and filling depressions, the material required being secured with ease and convenience from the adjacent slope of the bluff. This disturbance of the natural surface caused a heavy wash to occur during the first severe storm which obstructed the road to such an extent that it had to be cleared. One of the workers thus employed, a reputable farmer working out his road tax, seeing the implement fall from a scraper secured it and two months later sold it to Mr. Hull.

We visited the locality on December 20, 1908, and found it just as described; and also noted that no further wash had occurred although the evidence of that reported is unmistakably distinct as shown in the photographs taken then. To our surprise, however, the exposure is not loess as had been expected, but an unusually wide

expanse of glacial drift extending at least a quarter of a mile in either direction and containing many boulders of granite and other transported rocks of sizes sufficient, the angle of the slope being considered, to indicate the undisturbed condition of an original deposit. The palæolithic implement was picked up in the road at a point near where the figure stands in the photograph.

It may not be out of place here to call attention to the interesting fact that this section of the bluff extending in a northwest and southeast direction in a slightly curving line presents an inviting surface to a southwest wind for the deposition of loess if that formation is, as some believe, a present-day accumulation carried from exposed sand



PALAEOLITH FROM AMIZONIA

bars by æolian agency. That no such recent deposit has formed a mantle there seems to open a question for reasonable inquiry.

A quarter of a mile beyond where the palæolith was found we paused to examine an exposure of stratified drift in a perpendicular cut in the face of the bluff left by gatherers of road material. Here are several three-inch bands of many-colored drift pebbles separated by foot-wide strata of till resembling loess and forming a combination that presents a striking appearance. My companion called attention to a projecting point of yellow jasper near my hand which he said bore the appearance of human workmanship, and requested me to extract

it so as to be able to vouch for its genuineness. Although small it was so firmly fixed in place that several pebbles were dislodged with it, which made room for a handkerchief to mark the spot in a photograph.* Examination and comparison with the natural cleavage of a similar jasper fragment found close by strengthened the belief that the chipping was artificial, and it was accordingly sent to Prof. George Frederick Wright, to whom the palæolith here described and one taken from undisturbed loess a year previous had already been sent, and was presented before the Section of Anthropology at the Baltimore meeting of the American Association for the Advancement of Science in December last.

LUELLA A. OWEN.

St. Joseph, Mo.



THE WADSWORTH PALÆOLITH

AT THE Anthropological meeting in connection with the A. A. A. S. at Baltimore, Prof. G. Frederick Wright exhibited three recently discovered implements whose date is supposed to go back to the glacial period. One was that described and figured in the RECORDS OF THE PAST, by Miss Luella A. Owen, on page 291, Volume VI. This was found in the undisturbed loess of St. Joseph, 20 ft. or more below the surface and the evidence respecting the discovery is all that could be asked. The second implement also came from St. Joseph through the instrumentality of Miss Owen, who will herself soon give a full account of its discovery. It is sufficient here to say that it is of the same palæolithic type as the previous one noticed by her and is of flint which has been deeply oxidized and discolored. The third implement is the one of which we here give an illustration. This is not in all respects of the typical shape of the palæolithic implements but many palæolithic forms are very similar to it. The implement is of flint like that obtained at Flint Ridge in Ohio, and has some resemblance in shape to the flint discs which were found cached by the thousands in the mounds of southern Ohio. In some respects it also resembles those discs, but is more nearly palæolithic in type.

The implement was found in a gravel pit on the west side of the river Styx, in Wadsworth Township, Medina County, Ohio, only 3 or 4 miles south of the watershed between the Ohio and Lake Erie. The gravel pit is one of great interest because it is in, not an ordinary river terrace or delta, but in what is technically called a "kame" or "esker" terrace. Although the watershed is so near and the river

*The spot was only 6 ft. above the level of the road, and the overlying strata can be identified with certainty as an undisturbed deposit.

Styx is but a mere dribble, the valley through which it meanders is a mile in width cut in a rocky plateau which is about 200 ft. above the present flood plain. The watershed, also, is here determined by glacial accumulations of unknown but probably great depth and leads into an equally wide valley to the north. Evidently, we have here a preglacial valley which was occupied by glacial ice. The kame terrace runs along on the flanks of the western border about half way between the flood plain and the summit. It is composed of coarsely bedded material indicating a tumultuous flow of water and was evidently formed by a stream which was kept up to that level by the unmelted mass of ice that filled the valley of the Styx to the east of it.



PALAEOLITH FROM WADSWORTH, OHIO

It is precisely such a gravel deposit as Professor Russel has photographed as in process of formation between the edge of the Malaspena glacier and the flanks of Mt. St. Elias in Alaska. In no other place has so interesting an example of this class of glacial deposits been observed.

The evidence, however, that this implement came from an undisturbed strata of the gravel is not as clear as might be wished. It was found by a workman and came into possession of Capt. T. D. Wolback, some years ago, but was brought to public notice by Mr. John O. Lacey, who ascertained that it was found lying on the floor of the large excavation which had been made in the bank and may possibly have fallen

from the surface which is some 25 or 30 ft. above the base of the excavations. The probability that it came from the undisturbed gravel arises from the fact that the implement is so different in form from the great numbers that have been gathered from the surface and that it is covered with patina precisely like that found on palæolithic implements, and that in a large collection of implements gathered by a farmer nearby another one similar to this in every respect had been obtained by him in this same terrace a short distance away. If these implements came from this undisturbed gravel they are very nearly contemporaneous with the one found by Mr. W. C. Mills, some years ago at Newcomerstown, Ohio.



RECENT VARIATIONS OF GLACIERS

A PROPOS of Dr. Penck's estimates of the time necessary to produce the glacial variations which have taken place since the cavern at Wildkirchli, Canton Appenzell, Switzerland,* was first occupied by man, it will be instructive to recall the evidence showing the rapidity with which great changes in glacial conditions have taken place in various localities.

Among the most instructive and striking of these changes are those which have taken place during the past 100 years in the Muir Glacier of Alaska. The first detailed study of this glacier was made by a party which accompanied me to the glacier in 1886, when a month was spent in making detailed observations. In my report of the results of this expedition,¹ abundant evidence was presented to show that the glacier had receded 15 or 20 miles since Vancouver explored the coast in 1794, and that the thickness of the ice at what was the ice front in 1886 had diminished by fully 2,000 ft. during that time. All subsequent investigations have confirmed this conclusion.

Prof. Harry Fielding Reid, who spent much time investigating the glacier from 1890 to 1892, fully accepted my inferences,² and, on comparing photographs which I brought back with those taken by him, concludes that in "the four years from 1886 to 1890 the western end of the ice front has receded 1,200 yards and the eastern end 750 yards. The center also has receded about 1,200 yards, so that the average recession of the ice front is a little over 1,000 yards in the four years, or, say a mile in seven years. * * * It does not seem at all incredible that the ice from the various glaciers of Glacier Bay may have united to fill a large part of the bay a hundred years ago."³

*See Penck on the *Antiquity of Man*, RECORDS OF THE PAST, Vol. VIII (1909), pp. 33-38.

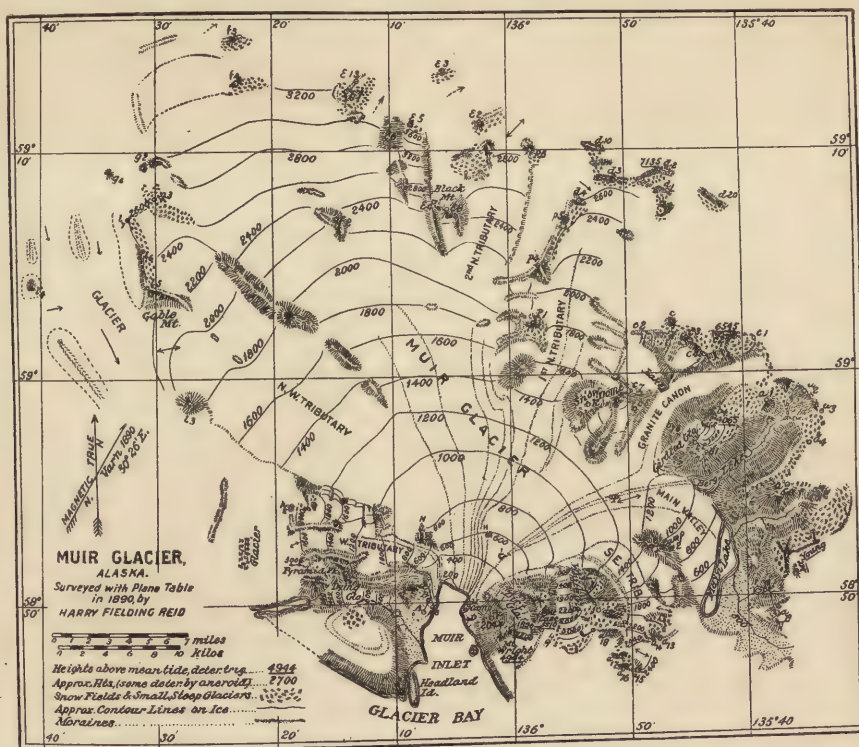
¹*Ice Age in North America*, chap. iii.

²*National Geographic Magazine*, Vol. iv (1892), pp. 19-84.

³*National Geographic Magazine*, loc. cit., p. 41.

Briefly summarized, the proof of this conclusion is:

1. The absence of forest in the upper part of Glacier Bay. There are abundant forests of spruce at the mouth of the bay, 20 miles below, but none at the head of the bay, and they gradually diminish from the mouth to the head of the bay, as if slowly following up a retreating ice front. At the same time it is clearly evident that there was recently an interglacial epoch, which could not have been more than 200 or 300 years ago. For there was in 1886 an extensive forest of standing trees just below the terminus of the glacier completely buried in deposits of sand and gravel, which had recently been overridden by an advancing ice sheet. These trees had grown with their roots in an earlier glacial deposit. A large amount of wood, consisting of



portions of trees of considerable size, had also been brought down on the moraine from portions of the glacial field now entirely bare of trees.

2. The sides of the inlet and of the islands projecting from the surface of the water in it are highly polished and finely striated by a glacial movement in the direction of the axis of the bay up to a height of at least 2,000 ft. So fresh are these surfaces that they could not have been exposed for any very long period to the disintegrating agencies of that severe climate.

3. The streams which come down the flanks of the mountain on the east side and enter the inlet near the glacier front are very active in depositing deltas at the base of the mountain, but those deltas are so small that only a few years would have been required to produce them.



MUIR GLACIER IN 1897



MUIR GLACIER IN 1906

But it no longer seems necessary to adduce this evidence, since the most recent investigations, following those of Professor Reid, show that the glacier has continued to recede until the front is now fully 7 miles farther up the inlet than it was in 1886. In 1897 Messrs. F. E. and C. W. Wright made an official survey of the glacier, and they report that since 1892 the glacier has receded 33,000 ft., which would make 36,000 ft. since my survey, or, in round numbers, a distance of 7 miles in 20 years.

Prof. I. C. Russell, who fully concurs in the estimates given concerning the recession of Muir Glacier, makes the following state-

five or six miles beyond their present position at the time of Malaspina's and Puget's visits, and were then united so, as to completely block the entrance to Disenchantment Bay, which is a continuation of Yakutat Bay. These observations show conclusively that the glaciers mentioned have retreated five or six miles within the past 100 years. The small recession that has here taken place, in comparison with the changes reported in Glacier Bay, during the same time, is probably due to the fact that the névé from which Muir Glacier flows is much lower than the snow fields drained by the Hubbard and Turner glaciers, and presumably more sensitive to climatic changes."⁴

What is still more remarkable concerning the glaciers in the vicinity of Yakutat Bay is that in 1906 they suddenly took a start forward. The facts are thus summarized by Prof. Ralph S. Tarr, who, in 1905 and 1906, surveyed the region under commission of the United States Geological Survey:

"The facts above stated for individual glaciers show that there is a remarkable change in progress in at least several of the main valley glaciers of the Yakutat Bay region. This change is in the nature of a paroxysmal thrust, as a result of which the ice is badly broken, as if a push from behind had been applied with such vigor as to break the rigid, resisting ice-mass in front. The effect of this thrust is in each case felt from far up the mountain valley well down toward the terminus of the glacier, and, in the case of Marvine Glacier, to the very end."⁵

In general, also, it may be said that the glaciers in North America are receding, though in a very irregular manner. But in one or two other instances, besides these mentioned by Professor Tarr, there is a spasmodic advance the cause of which is not apparent. So numerous and so extensive have been these known recent variations in the magnitude of existing glaciers that it is evidently not safe to base chronological calculations on the extent of their occurrences in past time.

It is worthy of note, also, that, according to Prof. Harry Fielding Reid, Agassiz⁶ calls attention to the fact that in the Alps themselves there have been noteworthy variations of the glaciers on a large scale during the last few centuries. "During the Middle Ages, from perhaps the X to XVI centuries, the glaciers of the Alps were much less extensive than at present, and horses were able to cross passes now considered difficult by mountaineers. During the XVII and XVIII centuries the glaciers increased, attaining their greatest extent in the beginning of this [nineteenth] century. At present they are in general retreating. This shows a variation almost as great and almost as rapid as that mentioned for the glaciers of Glacier Bay."⁷

Oberlin, O.

G. FREDERICK WRIGHT.

⁴*Glaciers of North America*, pp. 152, 153.

⁵*Bulletin of the Geological Society of America*, Vol. xviii, pp. 277, 278.

⁶*Etudes sur les Glaciers*, 1840, chap. xvi.

⁷*National Geographic Magazine*, loc. cit., pp. 39, 40.

ANATOLIA ARCHAEOLOGICAL CLUB OF MARSOVAN, ASIA MINOR

IN THE very heart of the ancient Hittite region there is growing a flourishing and active local archaeological society which is worthy of special attention, because of its location, enterprise and future possibilities. Our regular contributor, George E. White, is one of the most active of their members. In reply to our inquiry concerning this club we received the following letter from him, which we quote in full:

Marsovan, Turkey, January 18, 1909.

Mr. F. B. Wright, Editor Records of the Past, Washington:

My Dear Sir: Your favor of November 14 with its inquiry concerning the Anatolia Archæological Club came duly to hand. Our



MAP SHOWING THE LOCATION OF MARSOVAN

little society was formed 7 years ago, and most of this time has had an active and associate membership of 60 or more, and an attendance of 50 to 80 at the quarterly meetings. The active members are chiefly American missionaries resident here, or teachers in Anatolia College or the Girls' Boarding School. The associates are students of the upper classes. Each member who removes elsewhere is enrolled as an honorary member, and we have a number of other honorary members, of whom the most famous is Prof. A. H. Sayce, whose correspondence has been very helpful to us.

Archæological material lies thick about us, and the club programs, which are very informal, are made up partly of information drawn from books and papers, and partly from reports by different persons of what they have observed at their homes or when journeying. With the fees we are collecting a library, and have now nearly 100 volumes in several different languages, and collections of manuscripts and pictures are being made up. We have also a small but growing museum of antiquities, the most valuable single object being a Boghaz-keuy cuneiform tablet¹ containing a list of offerings to the god Khiba, who is mentioned in the contemporary Tel-el-Amarna tablets as worshiped in Jerusalem. This tablet was published by Professor Sayce through the Royal Asiatic Society in October, 1907. We are in the old Hittite region and near to Boghaz-keuy, its great center, so we have been especially interested in the rediscovery of the Hittites and the reconstruction of their history now in progress, but, of course, we are all amateurs at archæology, not specialists. We find RECORDS OF THE PAST very helpful.

Sincerely yours,

G. E. WHITE.

A society with such energy and such members as Mr. White deserves encouragement and we would suggest that in no place could financial assistance bring greater proportional results than through this society. They are in the field with Hittite mounds and other ancient ruins on every hand.² They have an active society with some members who, despite their disclaimer, are worthy to be classed on a level, if not above, many "specialists." They know the natives and their language, which is an important requisite for success in such a country. When all these advantages are considered, we feel like suggesting to some of our readers who do not have enormous sums to devote to archæological research but who are interested in furthering such work, that they communicate with Rev. George E. White, Anatolia College, Marsovan, Turkey-in-Asia, regarding the archæological profit to be derived from a moderate investment in that field. We should add that this suggestion is original with us and made without the knowledge of any member of the Anatolia Archæological Club, a society which we hope will live long and prosper.

FREDERICK BENNETT WRIGHT.

Washington, D. C.

¹See RECORDS OF THE PAST for 1907, p. 253.

²See RECORDS OF THE PAST for 1908, Vol. vii, pp. 267-274.

BOOK REVIEWS

SOCIAL LIFE AT ROME IN THE AGE OF CICERO¹

WHAT Professor Tucker's *Life in Ancient Athens* and Seymour's *Life in the Homeric Age* have done to acquaint us with social customs of the Greeks of these periods, Prof. W. Warde Fowler's book on *Social Life at Rome in the Age of Cicero* will do to bring vividly before us the Romans of Cicero's time. The object of the book is thus stated in the *Prefatory Note*: "It is merely an attempt to supply an educational want. At our schools and universities we read the great writers of the last age of the Republic, and learn something of its political and constitutional history; but there is no book in our language which supplies a picture of life and manners, of education, morals and religion in that intensely interesting period. * * * The age of Cicero is in some ways at least as important as any period of the empire; it is a critical moment in the history of Græco-Roman civilization. And in the Ciceronian correspondence, of more than 900 contemporary letters, we have the richest treasure house of social life that has survived from any period of classical antiquity." (p. vii.)

One remark in his *Prefatory Note* meets with our especial approval because it confirms our belief in the importance of popularizing archæology and ancient history, a belief to which we are striving to give voice in RECORDS OF THE PAST. He says: "I firmly believe that the one great hope for classical learning and education lies in the interest which the unlearned public may be brought to feel in ancient life and thought."

The life of all classes of people, the wealthy, the politicians, the common people and the slaves, is briefly and interestingly considered, the object being to "give such a picture of society in general as may tempt a student to further and more exact inquiry." (p. viii.)

The change in Roman life which came with increased wealth, the importation of slaves and the consequent leisure it brought to the upper class of people especially and to the lower classes to some extent, is well set forth in his chapters on the *Lower Population* and the *Daily Life of the Well-to-do*. Attention is called to the letter of Seneca describing a bath in the villa of the elder Scipio at Liternum, as showing one of the lines of improvement. Concerning this bath Seneca says it "consisted of a single room without a window, and was supplied with water which was often thick after rain." This is contrasted with the baths in the villas of Cicero's time when they consisted of at "least three rooms" and sometimes an open swimming-bath.

Although there were gormands in Cicero's time Mr. Fowler warns us against supposing that this kind of self-indulgence was

¹*Social Life at Rome in the Age of Cicero*, by W. Warde Fowler, M.A., Fellow and Lecturer of Lincoln College, Oxford, pp. xiii, 362, Map and 4 illustrations. The Macmillan Co. \$2.25 Net.

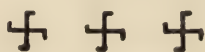
characteristic of the average Roman of this age. Our ideas on this subject have been gained from Horace and Juvenal, and in drawing conclusions from these writers, the author notes, we should make such allowances as we do in noting the foibles of our own day as illustrated "in the pages of *Punch*." (p. 282.)

In the *Epilogue*, after enumerating the signs of degeneracy which appear in the various chapters of the book, Mr. Fowler adds:

"But it would be a mistake to jump to the conclusion that this degeneracy had as yet [in the time of Cicero] gone too far to be arrested. It was assuredly not that degeneracy of senility which Mr. Balfour is inclined to postulate as an explanation of decadence. So far as I can judge, the Romans were at that stage when, in spite of unhealthy conditions of life and obstinate persistence in dangerous habits, it was not too late to reform and recover. To me the main interest of the history of the early empire lies in seeking the answer to the question how far that recovery was made." (p. 355.)

The possibilities for a book on this interesting subject are amply fulfilled, the result being a volume which will attract all who are interested in Roman history or in the present-day sociological problems, most of which were in existence in the Roman Empire during the time of Cicero.

FREDERICK BENNETT WRIGHT.



ARIZONA BIBLIOGRAPHY²

Since no person has spent more time collecting literature on Arizona than has Dr. J. A. Munk and no library private or public contains such a wealth of material as does his, a bibliography of his private collection of "Arizoniana" is of great value and general interest.

Dr. Munk says that his collecting became a fad which he could not stop until "now after 24 years of continuous collecting, I find myself in possession of a unique library that is the only one of its kind in existence. During all these years there has scarcely been a day but what some thought or effort has been given to the subject. The items do not stop at books and pamphlets but also embrace maps, magazine and some general newspaper articles. When my *Arizona Bibliography* was first published in 1900 it contained nearly 1,000 titles which has since grown to almost treble that number. Unusual interest centers in that region of country which accounts, perhaps, for the many books that have been written about Arizona. Its recorded history dates back nearly 400 years to the time of the Spanish Conquest and it has attracted more or less attention ever since. Its desert character and exceptionally fine climate, together with its ancient ruins and many marvels in nature make it the wonderland of America and the Nation's natural sanatorium and playground."

²*Arizona Bibliography, a Private Collection of Arizoniana.* By Dr. J. A. Munk, p. 98. Los Angeles, 1908. Second Edition.

PRE-COLUMBIAN AMERICA⁴

This work is a study of the monuments and civilizations of America in Precolumbian times, with a view to discovering their origin. The author in his introduction treats briefly the topics, were the aborigines of America autochthones? the date of the peopling of America, the unity or plurality of the indigenous American races, and the Mound-builders. The first part of the book, entitled *Les Monuments*, deals with the architecture, culture and tribes. Part second, *Les Civilisateurs*, discusses what became of the civilized race? the ancient American ruins, repeated immigrations, the influence of the Chamites on Semitic and Aryan civilizations, and the question of language.



EDITORIAL NOTES

EXPEDITION OF PRINCETON UNIVERSITY.—An expedition sent out by Princeton University under the direction of Prof. Howard C. Butler left in February to do archæological work in the Arabian Desert. A former expedition was sent to Arabia by the University in 1905.

NEW ANTHROPOLOGICAL JOURNAL.—The German Society for Anthropology and Ethnology will publish a new journal *Prähistorische Zeitschrift*, with Dr. Karl Schuchhardt of the Berlin Museum, Dr. Karl Schumacher of the Mainz Museum, and Dr. Hans Seger of the Breslau Museum as editors.

FIFTIETH ANNIVERSARY OF THE SOCIETY OF ANTHROPOLOGY OF PARIS.—On July 7 to 9, 1909, the Society of Anthropology of Paris will celebrate the fiftieth anniversary of its foundation. There will be addresses by the president (Prof. Edouard Ayrer), the secretary-general (Dr. L. Manouvrier), foreign delegates and the minister of public instruction.

ARCHÆOLOGICAL BILL IN NEW MEXICO.—On February 25 the "Archæological bill" passed the legislature of New Mexico and was referred to Acting Governor Nathan Jaffa. There was a strong opposition, but the final objections were overcome by two amendments, one referring disputes over the occupancy of the Old Palace to the next legislative assembly, and the other disavowing any intention of binding future legislatures by the passage of the act.

⁴*L'Amérique Précolombienne: Essai sur l'Origine de sa Civilisation.* By Alphonse Gagnon. Illustrated. Pp. 376. Laflamme & Proulx, Quebec, 1908.

CARE OF HISTORIC BUILDINGS IN PANAMA.—“An appropriation of \$1,000 has been made by the National Assembly of Panama for the preservation of the historic castles of Chagres and Portobelo, and the Basilica de Nata. They will be maintained in their present form without modifying the style of their construction. A watchman has been appointed to care for the castle of San Lorenzo of Chagres.”

SOCIÉTÉ PRÉHISTORIQUE DE FRANCE.—The fifth congress of the Société Préhistorique de France will be held in Beauvais, beginning July 26. Three days will be given to discussions and the rest of the week to excursions to the dolmens of Trie-Château, Boury, Serifontain and Champignolles; to the Camp of Cæsar at Hermes; the Quaternary stations of Mont-Sainte-Geneviève; to Compiègne, etc. A special exhibition of prehistoric objects will be held at Beauvais during the congress.

MANUSCRIPTS ON MT. SINAI.—Prof. Beneshewitz of the St. Petersburg Academy of Science reports that he has found 926 manuscripts in the St. Catherine monastery on Mt. Sinai which were not mentioned by Gardthausen, and that there are many others. These deal mainly with the lives of the saints, liturgies, church polity, medicine and, most interesting of all, with the history of church music. He also studied a number of the known documents and photographed certain ones.

EPHESIAN TESSERÆ.—Before the meeting of the Royal Numismatic Society on December 17, 1908, Dr. Head read a paper on some Ephesian tesserae having on the obverse a stag and on the reverse a bee surrounded by the words *Κήρυλλος ὅδε πρὸς πάλιν*. Eckhel had considered these pieces as druggists' tickets for advertising the sale of a medicament made of beeswax for the cure of a disease called *πάλιν*. Dr. Head suggests that they might have been charms used by bee-keepers for calling back the bees to the hive at swarming time by rattling them in a pot or kettle.

DELAY IN THE EXCAVATION OF HERCULANEUM.—“The Italian government cannot proceed with the excavation [of Herculaneum] until the senate has passed the bill now before it, which declares all archæological discoveries to be the absolute property of the state. A similar law already exists for the *Zona Monumentale* in Rome, and it is now proposed to extend this to the rest of Italy.

“In consequence of the great publicity given to the Herculaneum question, the local landowners, egged on by Neapolitan lawyers, are claiming huge percentages on the supposed literary and archæological treasures buried there. Hence the natural reluctance of the government to proceed till the legal question has been clearly settled. Owing, however, to the vested interests of several senators, there is little chance of the bill passing.”

PRESERVATION OF FRENCH ANTIQUITIES.—The French government has recently taken steps for the better enforcement of the provisions of the law relating to the preservation of antiquities. The Society of Anthropology of Paris called attention to the necessity of some action in view of the discovery made early last year at Braine of a prehistoric sepulchre. A stone cist was unearthed, reported to contain 4 skeletons, a vessel of brown earthenware and a flint hatchet; but all except the hatchet had been destroyed by the workmen before scientific observers visited the spot.

PRESERVATION OF ARCHÆOLOGICAL MONUMENTS OF MEXICO.—“The Department of Public Instruction and Fine Arts, of Mexico, is taking active measures to secure the preservation of the archæological monuments of the Republic. Stringent orders have been given to prevent the excavation, alteration, or transportation of said monuments, except under the authority of the aforesaid department, and their exportation is prohibited. An inspector has been appointed to look out after the interests of the government in this respect and to prevent the violation of the law.”

PHŒNICIAN SETTLEMENT ON MOTYA.—The Phœnician settlement of Motya, an island off Sicily, is being excavated at the present time. The walls are partly unworked rocks in “Cyclopean” style and partly well-wrought masonry. Two gates with massive battlements are good examples of Phœnician fortifications. Two stone staircases in the line of the walls have been found. At the south end of the island, is a rectangular enclosure of stone, evidently used as a harbor, with a narrow channel leading to the sea. At the north end of the island, was a necropolis, which appears to have been in use both in prehistoric and in Phœnician times. The remains of buildings have not yet been thoroughly excavated, but are likely to yield a rich harvest.

WORK AT SPARTA.—At the shrine of Artemis Orthia in Sparta, the British School at Athens has removed a large part of the Roman amphitheater in order to reach the original pavement. Several inscribed stelæ, one of which showed the facade of the archaic temple in relief, were found. South of the archaic temple, were the remains of an older building with crude-brick walls and a *cella* divided lengthwise by a single row of wooden columns. Small objects of interest were terra cottas, lead figurines, carved ivories, and pottery which showed the evolution on Laconian soil of the ware formerly called Cyrenaic. “The effect of the military constitution of Sparta is reflected in the decadence of industrial arts during the VI and V centuries B. C., the finest work dating rather from the VII and VI centuries.”

ANCIENT CITY OF PAGASÆ.—Explorations have been continued on the site of the ancient city of Pagasæ, in northern Greece, under the direction of Dr. Arvanitopoulos. Five towers dating from about 50 B. C. are among the recent discoveries. An adjacent cemetery was used as a quarry. Interesting painted grave stelæ were also found. The remains of a large *stoa* about 170 ft. long dating apparently, from the IV or III century B. C. were uncovered. The walls were lined with a thin layer of fine plaster, which was probably originally covered with pictures. Nearby, were the foundations of a temple about 15 by 10 yds. Probably the neighboring area was the *agora* of the city. The extent and thickness of the walls indicate that Pagasæ was an important town. The gravestones show that the inhabitants were from all parts of the world. A museum building in Volo, which will be completed in May, will shelter the finds from Pagasæ and other prehistoric antiquities of Thessaly recently discovered.

FRENCH EXCAVATIONS IN ALGIERS.—During 1908, the French government continued its work of excavating and conserving the historical monuments of Algiers. The remains investigated are chiefly Roman of the I century A. D. The streets of the ancient city of Thibilis have been laid bare to the extent of more than 75,000 sq. ft. as well as inscriptions dedicated to Faustina, the house of an important personage, and 3 linear measures engraved in stone in the house of the *ædile*. At Guelma the Roman amphitheater was repaired and here 4 classical plays were produced in May, 1908. Roman waterworks with conduits and reservoirs almost complete were found at Chemora and Sétif (Sitifs of the Byzantines). Mussulman remains at Kalaa have also been uncovered. They indicate that Berber art, which is merely a branch of Mussulman art, had an Asiatic and Persian origin rather than a Moorish origin. The Roman camp of Lambœsis is being excavated. Fifty small silver coins dating from the time of Nero to the time of Antoninus Pius were found there. Work continues at Timgad: new streets; an eastern gate with an inscription in which Marcus Aurelius seems to be called "Armeniacus"; houses; the Christian monastery and baptistry; mosaics, and inscriptions have been unearthed. The cells of the Byzantine monks who had small, but complete, hot and cold bath establishments, are interesting.

EXCAVATION OF TWO BARROWS AT TY'N-Y-PROLL.—During August and September, 1908, two barrows were excavated at Ty'n-y-proll, Llanddyfnan, Anglesey, England. "In the larger barrow, about 96 ft. in diameter and 7 ft. in height, were found 7 cinerary urns, another urn of a different type which was empty, a cist with incinerated bones, and an extended skeleton near the edge of the mound. The cinerary urns all contained burnt bones, and in

4 of them bronze was found." The largest urn, about 16 in. high and 17½ in. wide, contained "a bronze celt which was twisted owing to the action of fire, a perfect bronze knife-dagger, an elongated bronze implement nearly 4¾ in. long and sharpened at each end, and a piece of stag's horn." The bronze in the other urns had passed through the fire, and in one case had been melted. This barrow evidently belonged to the Bronze Age.

A barrow of earlier date at a distance of 200 ft. from the first, was 66 ft. in diameter and 4 ft. high. There were no urns, but about 2 ft. 3 in. below the ground level, near the center, was discovered a crouched skeleton "in a cist composed of clay and stones, which was covered with a limestone slab about 5 ft. long, 3 ft. 6 in. wide and 8 in. thick." The only other object found here was a small flint knife. The body seems to have been wrapped in skin or leather before interment. Prof. Keith, of the Royal College of Surgeons, considers that the skull belongs "to the type described by Huxley as found in long barrows and river-bed deposits in England and Ireland, and in the cist interments of Scotland, and regarded as Neolithic."

WORK AT CAERWENT DURING 1908.—Work at Caerwent during the last few years has revealed the general plan of the town. It was a rectangle with a highroad from east to west. Each half was divided into 10 *insulae*, or blocks, by a street parallel to the highway and 4 cross streets. The central *insula* of the northern section was the Forum, 100 by 107 ft., which was entered by a gateway 15 ft. 8 in. wide. Probably the Forum was surrounded on the east, south and west by an ambulatory behind which were shops, 19 ft. 6 in. deep and 16 ft. 6 in. wide, usually open along their entire front. The northern part of this area was paved with slabs of red sandstone.

During 1908, under the supervision of Dr. Ashley and Mr. Hudd, 3 large houses, or blocks, abutting on the main street between the west and east gates were excavated. Parts of these seem to have been shops. West of them was found what appeared to be a temple. "It consisted of a *cella* surrounded by a wall, which had probably formed the *podium*, with a court and entrance to the south from the main street." The plan was somewhat similar to that of the temple at Lydney. North of the temple, another house had been excavated with two large yards, one on the west having an imposing entrance or porch. A hoard of coins, most of them *minimi* was found; a large amount of "Samian" pottery; and a small stone figure of a seated goddess with a palm in one hand and a globe or pomegranate in the other. The execution was extremely rude.

FINDS AT ROME DURING 1908.—No regular work of excavation has been carried on in Rome during 1908, but there were some accidental finds. Prof. Gatti will soon publish an account of

the bronze document concerning the Social War which has recently come into the possession of the city. Just where it was found is a matter of conjecture, as it had passed through numerous hands before reaching scientific quarters. Prof. Lanciani believes it was discovered by workmen in the foundations of a new house at the foot of the Tarpeian Rock. "Engraved on that bronze sheet is one of the most interesting pages in the history of the Civil War and the life of the Roman leader Cnæus Pompeius' campaign."

The cutting away of the Montecitorio to make room for the new houses of Parliament yielded few results aside from the solving of the mystery of its origin. The accumulation of rubbish dates from the downfall of the Empire, when the spot seems to have been selected as a dumping place for the broken jars of the Portus Vinarius. "Before the rise in its level took place, the site was occupied by an altar of huge dimensions, sheltered by a growth of poplars or cypresses. The altar stood in the center of a platform enclosed by an iron railing, supported by stone pilasters." Part of the railing has been found *in situ*. No inscription was found. The enclosure may mark the spot where Marcus Aurelius was incinerated. "A fragment of bas-relief found within the railing represents the figure of a barbarian prisoner clothed, capped and bearded like the Marcomanni of the column."

Outside the Porta Portese at the foot of the hills of Monteverde 2 altars have been found *in situ*; one dedicated to LARES VIALES, one to LARES * * * VRIALES and one to LARES SEMITALES. The first and last are clear enough—dedications to the genii of the highroad and the lane, but the other is more difficult of interpretation. Prof. Lanciani believes the "C" is the letter to be supplied, and that the presence of this altar indicates that there must have been a "popular Curia in this neighborhood, which was the scene of the annual gathering of great crowds on the occasion of the feast of the Fors Fortuna. Artisans, slaves, small tradesmen and the non-descripts *qui sine arte aliqua vivunt* journeyed on June 24 to this suburban sanctuary, partly in *corricoli*, partly in boats down the Tiber for the purpose of supping and drinking in one of the innumerable booths erected for the occasion on the banks of the river or on the roadside." A similar feast on the same date is still celebrated.

EVOLUTION OF ANCIENT INDIAN ARCHITECTURE.—Prof. A. C. Macdonell read a paper before the British Academy on January 27 on the *Evolution of Ancient Indian Architecture*. As there is a lack of historical writings in India from about 1500 B. C. to about 1000 A. D., the study of archæology is of especial importance. But archæological remains have been disappearing rapidly. Fortunately, the Ancient Monuments Preservation Act of 1904 has arrested their

destruction. Pre-Buddhist architecture was of wood, with no temples or carved images of gods. Bricks first appeared in the V century B. C. and the use of stone in the middle of the III century B. C.

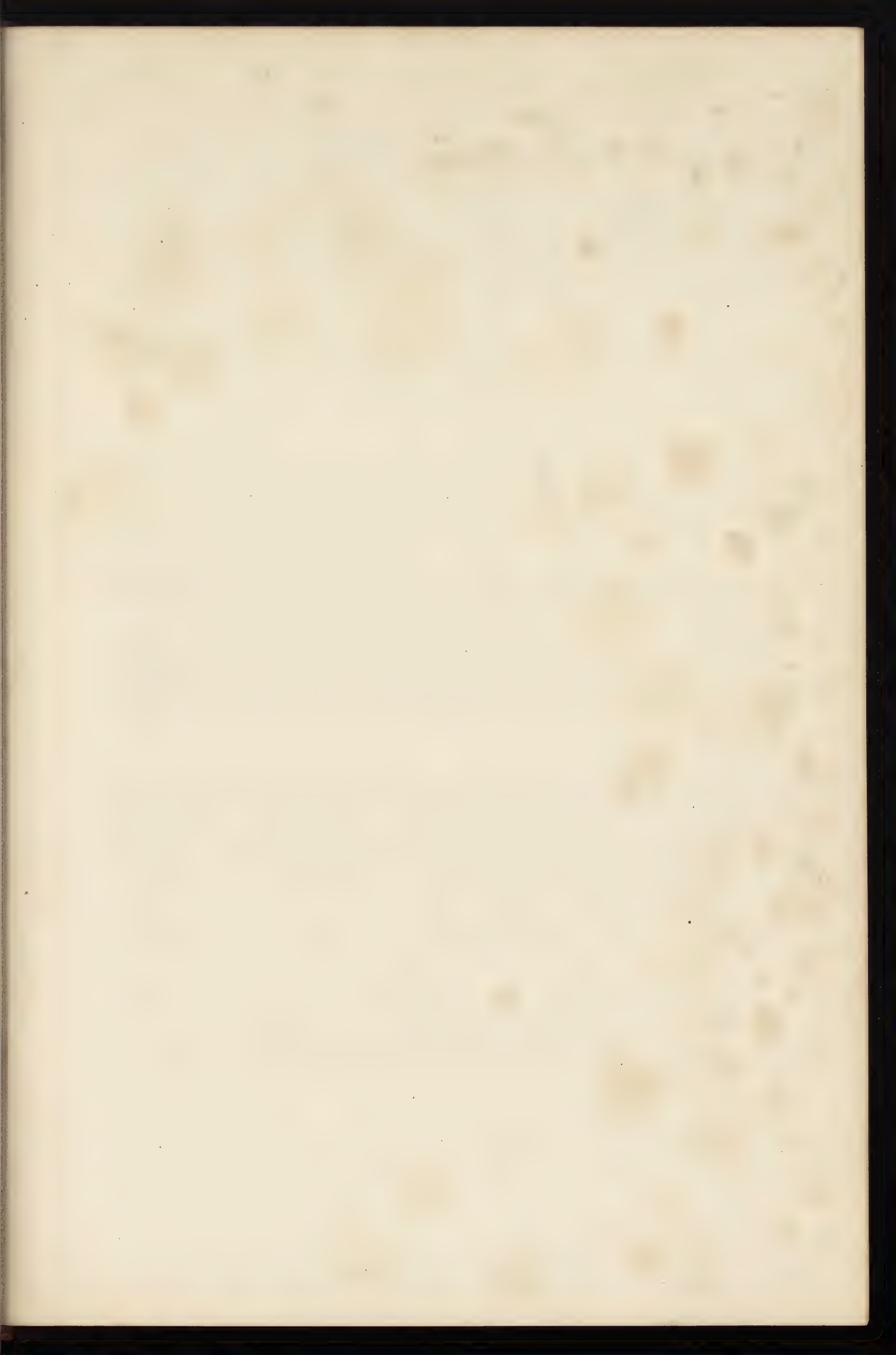
Prof. Macdonell divided Buddhist architecture into 3 periods: 250 B. C.-50 A. D.; 50-350 A. D.; 350-650 A. D. Three classes of buildings were considered: stupas (topes), chaityas (assembly halls or churches) and monasteries. The stupa was originally a hemispherical mound of earth intended to enclose relics of Buddha; on top was an ornament (called a tee) ending in one or more umbrellas. Both stupa and tee were elongated as time went on, and finally the 9-storied Chinese pagoda evolved.

The assembly halls were constructed with aisles and an apse. A stupa was placed underneath as an object of veneration. The earliest of these were rock-cut specimens from the III Century B. C. The stupa became elaborate in later times, with a figure of Buddha carved on its front; later yet it became a hollow cell with a figure of Buddha inside. This marked the transition to Hindu architecture.

"The monastery originally consisted of a square hall surrounded by a number of sleeping cubicles. Rock-cut specimens alone survived, there being altogether about 900." In the first period, no figure sculpture appeared. Toward its end, 4 pillars supporting the ceiling were introduced. In the second period, the number of pillars increased from 12 to 28 and a sanctuary containing a figure of Buddha was introduced at the back of the hall.

Hindu religious architecture seems to be derived from earlier Buddhist types, the oldest specimens dating from 600 A. D. There are two styles, the Dravidian or South Indian, and the Indo-Aryan or North Indian. "The Dravidian temple was derived from the Buddhist monastery. Its plan was a square base containing the cell in which the image was kept; the cell was surmounted by a pyramidal tower, always divided into stories and surmounted by a small dome either circular or pyramidal." The later examples stood in a court surrounded by a wall whose special feature was the Gopuran, or great gateway opposite the temple. The best specimen was at Tanjore, built in 1025 A. D. Later there were several courts. These temples had elaborate pillars, which about 1300 A. D. acquired a permanent type with conventionalized animals and riders affixed.

In the north, "the square cell was surmounted by a curvilinear spire with a vertical band running up each face. The top was finished off with a fluted ornament somewhat flattened. In the earliest specimens a porch was added in front of the cell, but was not essential." The earliest ones were found at Bhuvaneshvar in Orissa, beginning about 600 A. D. and coming down to 1100 A. D. The number of porches was finally increased to 4. The Indo-Aryan style of temple seems to have had for its prototype the Buddhist stupa.

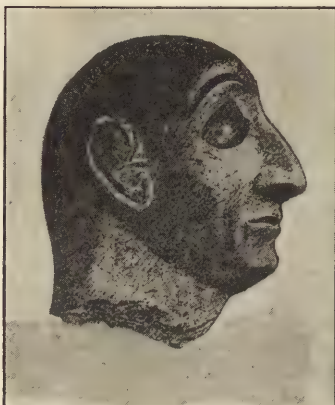




Sumerian Head
From Babylonia



Sumerian from Memphis



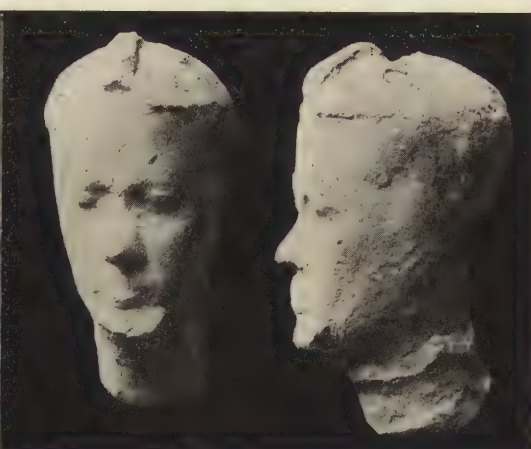
Sumerian Head
From Tell Loh



Sumerian from Memphis



Babylonian Semite
Hammurabi



Babylonian (?) from Memphis

TERRA COTTA HEADS OF FOREIGNERS FROM MEMPHIS
COMPARED WITH OTHER TYPES

RECORDS ^{OF} THE PAST

VOL. VIII



PART III

BI-MONTHLY

MAY-JUNE, 1909



MEMPHIS AND ITS FOREIGNERS

THE opening of the mounds of the great capital of Egypt is the largest enterprise yet started in Egyptian excavation. To clear the sites of the temples only, will probably take 20 years to complete, and 400 or 500 workers are employed during the dry season when the water level has subsided. Beside the temples the city itself is of great interest as a commercial and manufacturing center of civilization. The Egyptian Research Account has undertaken this work for solving as its means and opportunities will allow. Each year two preliminary months are spent on drier ground until Memphis is in condition for the three months' work which is practicable each year.

The preliminary work of 1907-08 was at Athribis near Sohag in upper Egypt. A temple was unearthed there about the size of the well-known temple of Denderah, and as much as 12 ft. of the sculptured walls still remain in some parts. It was built by Ptolemy XIII about 60 B. C. and finished under Hadrian about 130 A. D. Another temple site of Ptolemy VIII was also found. In the cemetery is a very curious tomb with two horoscopes painted on the ceiling; these are the only examples of colored zodiacs of Roman age and we traced them and published them in colors. Near by is a cemetery of the pyramid age, with dozens of tombs cut in the cliffs about 500 ft. up. Four of these which were sculptured, we copied; they are peculiar in some points, such as a man having 6 wives, an instance of polygamy as yet unknown in ancient Egypt.



FIGURES OF SCYTHIANS FROM MEMPHIS AND SCYTHIAN FROM KOUL-OBA
VASE (UPPER LEFT CORNER)

The main work was at Memphis, on several parts of the site. The great temple enclosure of Ptah was traced around, defining the brick wall of Rameses II which ran 1-3 of a mile in length and 1-4 of a mile in width. This area is equal to that of the great temple of Amen at Thebes, and it was doubtless filled with buildings like the temples



PERSIAN, GREAT KING FROM MEMPHIS



FROM SIDON
SARCOPHAGUS



PERSIAN CAVALRY OFFICER
FROM MEMPHIS



SEMITE
FROM BENIHASAN TOMB



SEMITIC SYRIAN FROM MEMPHIS

at Thebes. A part where ruins were already visible was cleared deeper, thus finding hundreds of tablets and fragments of the XVIII dynasty, underlying the Ramesside building. Many of these had figures of ears upon them; and the inscriptions, calling on the god Ptah to hear prayers and petitions, show that the idea of these was that the ears were those of the god to receive and hold the prayers. Sometimes there is only a single ear and nothing more; in the tablets are two or more ears and one has 376 ears upon it. These give an interesting light on the beliefs and practises of the Egyptians. The same site will be further excavated this year.

Another large building was found, of King Siamen, 1000 B. C., of whom scarcely anything was known before. Two of the sculptured lintels are now in Philadelphia and Pittsburg. Another building of Siamen was found beneath the house of the Research Account, a whole column 13 ft. high still standing on its base.

The most interesting site from a western point of view is that of the foreign quarter, which was identified by the quantity of early Greek pottery, and the position described by Herodotus. Here we found the site of a temple built by Merenptah; this is almost certainly that of Proteus according to Herodotus, which contained the shrine of the foreign Aphrodite. Here we unearthed the great outer gateway, half of the fore-court and the doorway which led into the temple. It is the work of 1909 to clear the temple site itself. The pottery found here is foreign and all about the site are found pottery heads of foreign types.

The heads, which we illustrate here, seem to have been made first during the Persian occupation, about 500 B. C. The earlier ones are all hand-modeled and solid; later, about 300 B. C., figures were made in a mould, but still solid; and probably about 200 B. C. begin the hollow moulded figures, which continued to be made down to late Roman times. The heads of the Persian Great King and the cavalry officer are unmistakable. A Syrian Semite is exactly like that in the tombs at Benihasan. Other heads are of the types of the Sumerian Babylonians, showing that the race continued although the language was changed to Semitic. The Scythians on horseback with their tall, pointed hoods are just the same as on the Crimean vases. While Indian heads and figures are also found here of the Tibetan and of the Aryan stocks, showing how both the extremes of the Persian empire, Scythian and Indian, were brought together in Memphis, as we know they were in the Greek war. The importance of the Indian colony in Memphis under the Persian empire lies in its bearing on the importation of Indian thought, and the rise of the ascetic movement before Christ which culminated in western monachism. The whole of these heads are published in the annual volume *Memphis I* which is just ready for issue.



Tibetan Type

Aryan Type

TERRA COTTA FIGURES OF INDIANS FROM MEMPHIS

The present year's work has also been very successful at Thebes and at Memphis where the palace of Apries and the temple of Proteus are both being now cleared. An account of these will appear in the future. Everything found in the work of the Research Account is published as soon as possible in the annual volumes which are given to subscribers, who can remit to Doctor Winslow of Boston, or to University College, London.

W. M. FLINDERS PETRIE.

Memphis, Egypt.

THE BUSHMEN AS EXISTING REPRESENTATIVES OF THE PALAEOLITHIC RACES

PROF. W. J. SOLLAS, of the University of Oxford, has presented a paper on *Palaeolithic Races and Their Modern Representatives* in the April issue of *Science Progress* [London]. After a résumé of the discoveries in Europe, especially of "Solutrian man," he sets out on the "rather difficult quest" for a modern representative of these palaeolithic people who left their record carved on the walls of the caves they inhabited. Regarding their drawings in polychrome he says: "We cannot survey the series of pictures [in the cavern of Altamira, southern France] with which Solutrian man has illustrated the animal life of his time without a feeling of delight and the pleasure we feel in this glimpse of a vanished fauna is enhanced by the fact that we look at it through the eyes of Solutrian man himself. The pictures seem to be a pure study of nature, expressing the vivid sympathy of the artist with the world around him. In part this must be so, but there may be more. Without a full understanding of the civilization of a race we cannot understand its art. Our own minds are saturated with the influence of our age, and the art of Solutrian man may have meant something very different and something much more to him than it does to us."

Among all these drawings, no portraits of Solutrian man are to be found, although there are some grotesque heads "like the foolish caricatures on a schoolboy's slate." However, numerous figurines depicting the human form have been found.

In his search for modern representatives of this palaeolithic race, Mr. Sollas thinks he has found, in the Bushmen of Africa, a people in much the same stage of culture as the men of Solutrian time. These Bushmen, who once spread over a large part of southern Africa, have now been driven into the Kalahari desert where they inhabit caves and decorate "the walls with paintings, both monochrome and polychrome, some of which recall in the closest manner the best efforts of Solutrian times."

"There are obvious differences between the Solutrian and the Bushman paintings; in the latter, the various figures are not thrown on to the wall in a disorderly crowd, but are grouped together into a picture, which tells a tale of its own; neither is the human figure excluded—on the contrary it often plays a predominant role. At the same time the differences are outweighed by the similarity, the technique is much the same, there is the same realistic truth, and the

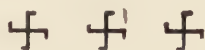
same quality of movement in the animal forms. Certainly of all existing hunting tribes the Bushmen make the closest approach in their art to that the Solutrian age."

This supposed connection between Solutrian man and the Bushman is strengthened, Mr. Sollas claims, by the "discovery of the actual remains of Solutrian man himself," in the Grotto des Enfants near Mentoni where the earliest interments date to Solutrian time. Here in the lowest stratum "10 meters below the surface of the ground" the skeletons of a woman and a boy were discovered. The boy was about 17 years old, while the woman was advanced in years.

"The skulls are dolichocephalic (index close on 69), the glabella is slightly prominent, the nose flat, with nasal gutters at the base (a peculiarly negroid character), the jaws prognathous, the chin slightly retreating, the palate parabolic in outline, the teeth large and Australoid in character." The height of the woman was about 1,580 mm. and of the boy about 1,540 mm. (5 ft. 2 in., 5 ft. 0.6 in.) The range of the height of the Bushmen is 1,400 mm. to 1,650 mm., giving an average of 1,530 mm. (5 ft. 0.22 in.) From this it appears that these skeletons were of members of a negroid race of low stature, the individuals being of sufficient importance to receive a ceremonial burial.

In neighboring caves, figurines representing strongly steatopygous human forms add further evidence in favor of Mr. Sollas' view, for the steatopygy of the Bushmen is one of their most prominent characteristics.

He does not claim that Solutrian Europe was inhabited exclusively by a negroid race, but that such a race, probably of Mediterranean origin, occupied southern France and northern Spain. Despite the small brain capacity, Mr. Sollas regards the Bushman as possessed of great intellectual ability; they love music, show great artistic ability, according marked honor to artists competent to decorate their walls in polychrome. He refers to one individual who could converse fluently in Dutch, spoke English, and "was thoroughly conversant with Hottentot, Ochi-herrero, Ochimpo, and several Bantu dialects."



BRITISH BARROWS AT REIGHTON.—"During the summer [of 1908] two British barrows at Reighton, near Bridlington, were opened by the Curator [of Hull Museum, England] with the kind permission of Mr. Strickland Constable. From these much interesting information was obtained, but beyond a large collection of flint flakes no specimens suitable for the museum were secured."

THE AGE OF THE LANSING SKELETON

PROF. J. E. TODD, of the Kansas State University, has published in the Proceedings of the Iowa Academy of Sciences an important contribution to the facts bearing upon the age of such deposits as that in which the Lansing skeleton was found. Discussions relating to this discovery will be found in the RECORDS OF THE PAST (Vol. I, pp. 273-275, and Vol. II, pp. 119-124), where the age of the skeletons is made out to be of great antiquity. Professor Todd, however, suggests that the deposits may be very recent, basing his argument upon observations concerning the extent and rapidity of the accumulation of debris under certain conditions on the borders of the Missouri Valley.

The bottom lands of the Missouri River occupy a space 2 or 3 miles in width between bluffs of yellowish loam, known as "loess," which are from 250 to 300 ft. high. These bluffs when watersoaked yield easily to erosion, and creep down upon the bottom in great quantity and with great rapidity. The river from time to time shifts its course from one side of the bottom land to the other, now washing the east bluff and now the west. When the river is washing the base of either one of the bluffs everything which creeps down from the bluffs there is carried away by the current; but when it swings to the other side and leaves a space of 2 or 3 miles between it and the opposite bluff, the wash upon the side farthest from the river accumulates upon the bottom land in a cone of dejection of great size; and so occasionally buries recent human relics to a very great depth in a short time. In such situations in Fremont County, Iowa, the remains of Mormon settlers who left the region fifty years ago have been found buried beneath from 20 to 30 ft. of loam which is now so overgrown by brush and trees that it seems a part of the original timber. Indeed, fresh wood is found in places buried 50 ft. beneath debris which is certainly not more than 100 or 200 years old. Professor Todd's interpretation of the facts in connection with the Lansing skeleton is as follows:

"In the light of our study, we may read it still more recent. Without any lowering of the flood-plain of the Missouri, we may rationally explain it as follows: A small stream, probably flowing only part of the time, was discharging into the bottom land near. The Missouri which had been close at hand so that the stream had cut quite a channel in the underlying limestone, had swung off to the opposite side of the plain. The debris of the stream, especially in time of flood, began to accumulate and build up. * * * The human skull (in fact we are told the remains are of a woman and child) may have

been deposited in an overwhelming flood early in this stage. This continued till the body of the terrace 20 or 25 ft. in thickness had been deposited. Then, when the Missouri swung back to the west side of its flood-plain again, trace of which is seen in the fresh cliffs and steep bluffs facing the bottoms so close by, the little stream cut down to its present level. It is known to be only a few years since the river has again returned to the east of its valley, and the little stream has already begun to build a new alluvial fan or delta on the adjacent plain, though it has not yet begun to deposit between the hills.

"* * * A few centuries would seem to be ample estimate for the time since the burial of the 'Lansing man.'"



THE CLIMATE OF ANCIENT PALESTINE

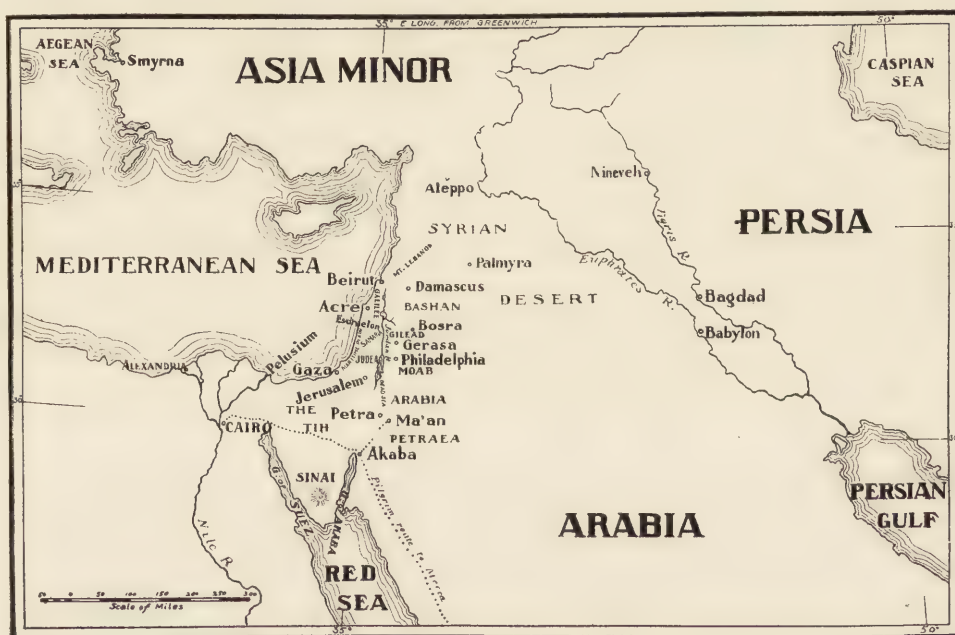
EVIDENCE that there has been a great change in the climate of Palestine, and the regions adjoining since Bible times is presented anew and with great force by Mr. Ellsworth Huntington in the last Bulletin of the American Geographical Society. [Vol. XL, Sept., Oct., and Nov., 1908.]

Making all allowance for possible inaccuracies respecting the number of Israelites who wandered in the wilderness, he forcibly remarks, "it can scarcely be denied, however, that the story has an historical basis, and that a large body of people, the ancestors of the Jews came out of the regions known as Sinai, the Tih, and Arabia Petræa and invaded the fertile land of Palestine. The number of invaders may have been multiplied tenfold or twentyfold, but it must have been large. The time of the wanderings may have been 10 years or 100; all this is immaterial.

"The essential fact is that a large body of nomads, starting from Egypt, traversed the Sinaitic peninsula and Arabia Petræa and finally invaded Palestine. They suffered some hardships, but not a tithe of what a body of people would suffer now. They met a large number of inhabitants during the course of their journey, far more than would be met with to-day. The country was then much more densely populated than now, as appears from the abundant ruins of cisterns, terraced fields, houses, villages and cities upon which every traveler expatiates.

"The whole agglomeration of circumstances is eminently consistent with the existence of more favorable natural conditions in the past than in the present. It is eminently inconsistent with the present conditions.

"In this connection another point needs emphasis. The writers of the Biblical narrative and of other ancient documents lived near Sinai; they were familiar with it personally or from the accounts of contemporaries who had traversed the region on business or pleasure. They wrote for men who knew the places mentioned. Under such conditions they could not have falsified their accounts as some modern critics would have us believe. They must have described the country as they and their contemporaries knew it to be. Every modern traveler, almost, has much to say of the hardships of travel in Sinai, and of the impossibility of its supporting multitudes of people. The ancient writers say almost nothing of this. We can scarcely suppose that they were fools or knaves, and therefore we must believe that they described things approximately as they were."



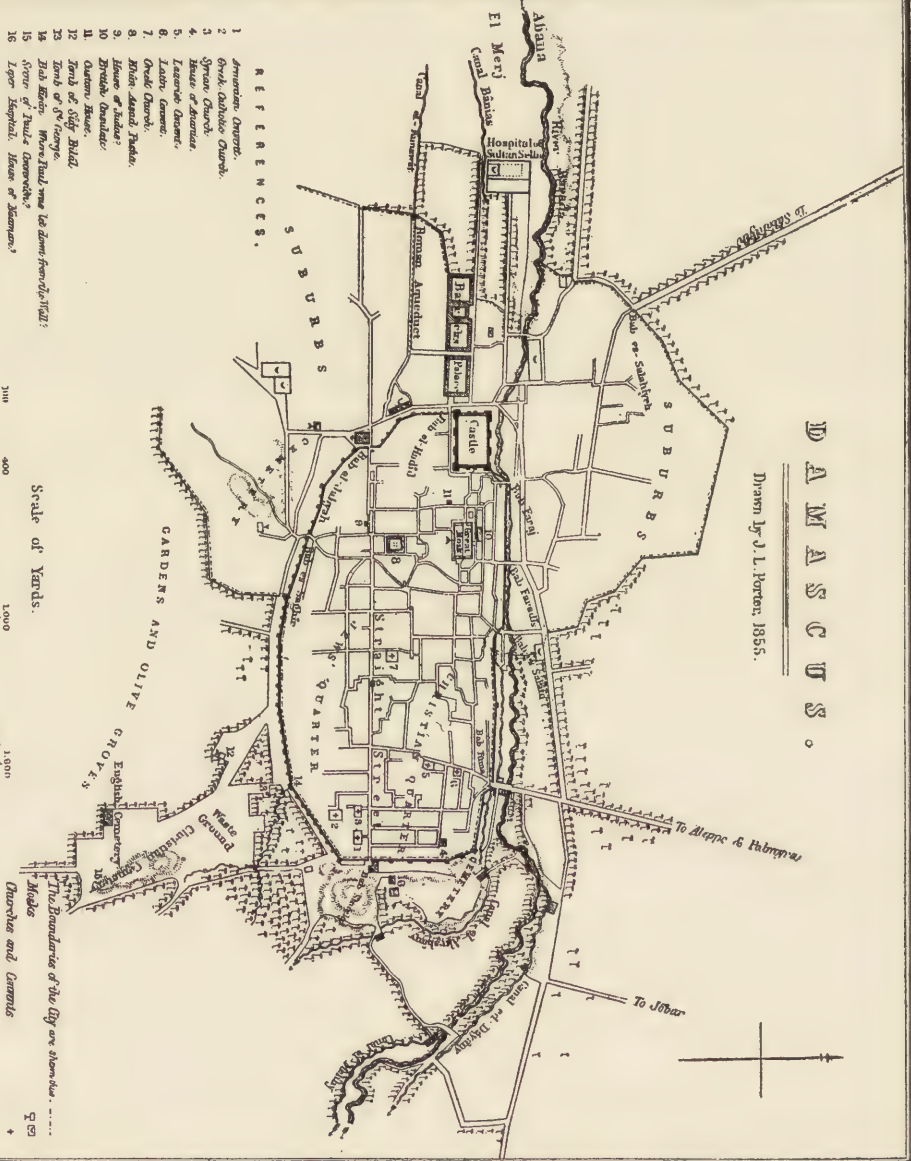
MAP OF SYRIA AND SURROUNDING COUNTRIES

But independently of this Biblical account there is superabundant evidence to the same effect concerning all of Syria and the surrounding regions. Livingstone long ago called attention to the fact that "the prophets in telling all the woes and miseries of the captivities, never allude to suffering or perishing by thirst on the way." From this he properly infers that "had the route to Assyria been then as it is now, they could scarcely have avoided referring to the thirst on the way."

The numerous abandoned caravan routes and centers of traffic during the Roman period also bear emphatic testimony to a former fertility over large portions of Arabia and Assyria which are now desert. During that period Petra became a center for main lines of

D A M A S C U S .

Drawn by J. L. Porter, 1855.



REFERENCES.

1. American Consulate.
2. Greek Catholic Church.
3. Syrian Church.
4. House of Ananias.
5. Leaven's Quam.
6. Latin Convent.
7. Greek Church.
8. House of Ananias.
9. British Consulate.
10. Quam, House.
11. Tomb of St. George.
12. Tomb of St. George.
13. Bab Khas, where Paul was held down from the wall.
14. Syrian of Paul's Conversion.
15. Syrian of Paul's Conversion.
16. Syrian of Paul's Conversion.

Scale of Yards.

0 400 1000

The Boundaries of the City are shown by a dotted line.
Churches and Convents are marked with a cross.

of a population such as is indicated by the size and magnificence of the ruins. This is strikingly illustrated in the facts relating to Palmyra. During the first three centuries of the Christian era Palmyra was a flourishing city of probably 180,000 inhabitants ruling all the East from Egypt to the Bosphorus, but to-day it is merely a squalid village of mud huts with at most a few hundred inhabitants. Formerly the city had about the dimensions of Damascus being 9 or 10 miles in circumference, but to-day all her inhabitants are clustered within the ruins of the Temple of the Sun. In addition to the great urban population of Palmyra there was also a great suburban population as there is about Damascus at the present time. In the old days also Palmyra was renowned for the abundance and excellence of its springs; but to-day there is scarcely enough water to meet the wants of its 200 or 300 population.

In the light of all these facts it is impossible to resist the conclusion that within historic times all southwestern Asia was favored with a heavier rainfall than now, which renders easily credible much of ancient history which has been regarded as an exaggerated representation of Oriental rhetoric. Under former climatic conditions the population assigned to Palestine by the Bible in the book of Numbers and at the time of David may easily have found subsistence within the bounds assigned to the Kingdom of Israel.



ANCIENT RECORDS OF HALLEY'S COMET.—Andrew C. D. Crommerlin in an article on *The Expected Return of Halley's Comet in Science Progress* [London] gives an interesting account of the early observations of this comet which appears at intervals of about 75 years. The first definite record of this comet is from China where it was observed and fully described in 12 B. C. The various appearances from this time up to that of 1378 were more fully and accurately described in China than in Europe. Its path through the constellations was described in the Chinese records because they "imagined that the terrestrial kingdoms had their counterparts in the sky, and that comets were ambassadors between them indicating corresponding relations between the kingdoms on earth so that valuable political information was to be gained" from this study of the heavens.

In the West the appearance of comets was a bad omen and hence recorded, but its path was not an important feature. Josephus mentions the appearance of a comet several months before the fall of Jerusalem. This was probably Halley's Comet which appeared in 66 A. D. The death of Emperor Macrinus in 218 A. D. was also preceded by a comet which was probably Halley's.



GENERAL VIEW OF TEOTITLAN

AZTEC RUINS IN SOUTHERN MEXICO¹

PART I

TEOITITLAN DEL CAMINO is situated in the northern part of the state of Oaxaca, near the boundary line of the state of Puebla; at the foot of the San Bernardino Sierra—an hour's ride from San Antonio Nanahuatipaum. Teotitlan, known as Teotitlan Del Camino (of the road) to distinguish it from Teotitlan Del Valley (of the valley) of the Zapotec country, lies on the road to Oaxaca, east of the center of the valley of the Rio Salado. The valley at this point, not including the Petlanco basin, is about 5 miles wide—that is measuring from the San Bernardino Mountains to the Rio Salado; it is quite level for about 2 miles from the river, the other 3 miles, which include Teotitlan, is somewhat hilly and has numerous small gullies or "barrancas" that are dry nearly all the year,

¹Some Ruins of Teotitlan Del Camino and Vicinity: Being notes made while on an expedition in search of some rare fiber plants.

their position being continually altered by the floods that partly fill them in a few years. There are also some canyons.

The present population of Teotitlan is about 2,000, composed of Mexicans speaking Spanish, and some Indians who have migrated from the Sierra and become mixed with the Mexican-Spanish population; there is also some French blood; and an infusion of negro blood due to the proximity of San Antonio Nanahautipaum, a village composed principally of negroes, former slaves working for the monks on the plantation of Ayotla and other near-by places. The language spoken is Spanish, but there is also some Mexican spoken by the older inhabitants. Teotitlan served as the headquarters for the French troops during their invasion of Mexico, and subsequently for several revolutionary parties. The meaning of Teotitlan as given to me by the natives is "the land of the gods" and also as "the place of many churches." My interpretation of the name is "the land of the Sun god"—Teo is god (it is sometimes pronounced Teotl); tlan, "land of," or "land of god;" but, as Teo also means Sun, it might be correct to call it "the land of the Sun god;" ti is not clear to me—it might be a euphonious termination of Teotl, though not probably so. This is the definition that occurs to me at the time of writing.²

The syllable ti has a meaning in several dialects of these parts. In Mazateco Teotitlan is known as Je.

The ruins in the vicinity of the present town are many, extending over a wide area and representing different styles of work of which the large artificial hills are the most interesting.

The important ruins near Teotitlan are El Fuerte, and a similar monument, across the river known as La Iglesia, or the church. These architectural remains furnish proof of the advanced culture of the people, and it is further evident from the character and extent and contents of the ruins that Teotitlan was a religious center.

To the east of the village there is a large artificial hill about 300 ft. long (including some adjoining mounds with which there seems to have been a connection) and 100 ft. wide. These small hills near the main hill may have been independent, but it is more likely that they had some connection with the main hill. They could have been additional apartments or defenses. A survey of the place shows that it has some strategic value (for which reason I have named it El Fuerte, though, of course, it could not have been wholly used for a fort). Some 40 years ago workmen accidentally penetrated into an inner apartment of El Fuerte and discovered several bodies in coffins that were made of wood. A square of decomposed wood generally a wide, black mark, enclosed the bodies. The fine pieces of pottery, idols, copper celts, gold and silver relics, found here, denote that the apart-

²See the definition in *Bureau of American Ethnology Bulletin* 28, pp. 295-6; *Report of the Bureau of American Ethnology*, 1888-9, p. 135.

ments were the tombs of some king. Recent floods have effaced all signs of the passage to these rooms. On the summit of the hill some basins occur; they are, I believe, rather depressions created by the collapsing of some inner rooms. The hill is high and is apparently divided into stories, in some places there appear to be 3; the base is of stones laid so as to form an even surface which seems to be the base floor throughout. At about the middle of the hill a large ditch has been dug forming a semi-circle and having the appearance of an intrenchment, that was probably made during the late revolutionary times. The small hills that were perhaps connected with the main structure, and the main hill itself, have not been investigated beyond the removal of blocks of well-hewn stones, that were taken for the purpose of constructing some of the houses of Teotitlan, from their sides; and a few spasmodic efforts that have been made from time to time to enter them; the openings thus created expose some adobe walls and partitions not over a foot thick, covered with $\frac{1}{4}$ in. coating of lime. The floor appears also to be smeared with this plaster.

Again, along the road to Bigastepec a number of smaller hills and graves of different sizes may be seen. The foot of the high mountain and its many spurs was the place generally selected as the burying ground. The graves lying in line side by side are small mounds of earth about 8 ft. long and 2 or 3 ft. high. A number of these graves were dug up by wild animals; broken pottery, loose ashes, sea shells and pieces of idols were thus disinterred. These small graves are not divided off, and have no adobes in their construction, but are mere mounds of loose earth, the body sometimes appearing to rest on the surface of the ground. The larger graves which have the shape of round mounds are often divided off into stories with chambers. Mounds or hills are sometimes situated on the mountain spurs and on level places; heavy stones have been placed at their base though this is probably not a floor that extends throughout as it seems to do in El Fuerte. They cover a square of 30 or 40 ft., and were no doubt of a conical shape originally, though weathering and subsequent excavations have lowered nearly all of them several feet. A lime line was seen running completely around a mound which may have marked the division between upper and lower apartments or stories.

We also came across another large artificial hill, La Iglesia, somewhat similar in construction to the large hill El Fuerte which I have described, but more explored and torn down. La Iglesia has been explored at different times, a tunnel having been dug through the top cutting it in half. Rains have, however, washed the earth into the excavation, thus much reducing its height; at least the wide stone foundation and other indications would so suggest. On the sloping sides of the natural hill on which La Iglesia was built, and this is true of other mounds, very thick walls of loosely laid, irregular stones were built. This was done so as to increase the building area

at the top of the natural hill or spurs of the mountain where the constructions are located. Building up the sides of natural hills and spurs of mountains so as to increase their building area and protect their sides from the floods was extensively resorted to. La Iglesia and El Fuerte, and, in fact, all the mounds here are covered with loose earth so as to represent to the casual traveler nothing more than natural hills.

A small river passed Teotitlan, a branch of which runs through the center of the village. We devoted some days to the exploration of the shores of this river, and found additional mounds, square floors, and squares marked off by irregular slabs of stones stuck edgewise in the ground. These are, no doubt, the sites of former houses, and may also have been used for burial places. They contain ashes and remains of pottery vessels.

On both sides of the river the stones used in the construction of the mounds largely came from a natural hill known as Cerro Blanco. Cerro Blanco, or White Hill, is covered on one side with small artificial mounds and other indications of former occupation. The hill seems to be eminently adapted for refuge in case of attack; nevertheless, it appears to have been largely a place of worship. A piece of finely polished black rock was found on the summit, which on close examination proved to be a part of a large idol; several similar fragments were found elsewhere.

It was noticed that all the main ruins were so situated and constructed as to be capable of easy defense. Every eminence suitable for fortification was occupied, perhaps primarily as a refuge and afterward more permanently. Cerro Blanco and other main natural and artificial hills exhibit signs of having been places of worship; but whether first used as such or as places of defense it is impossible for me to determine.

In the Teotitlan region it seldom rains, but when it does it is torrential, causing floods that wash away large quantities of earth and carry it to the valley below which thereby becomes rich and productive. The ancient inhabitants seem to have been aware of the destructiveness of the floods, for they placed their constructions in places least affected by them. Still the floods carried off great portions of their works, sometimes a single rush of water sweeping away an entire mound and leaving little or no indication of its former existence; while no doubt burying others. Long streaks of lime occur in many places in the streets of Teotitlan and near by; these lime lines are of the usual thickness of the coating of lime that is put on the inside and outside of the adobe houses. It is possible that they may be such a coating, especially as they generally run parallel to one another—the walls may have disappeared, gradually leveled by wear and covered by floods so that they present an undistinguished surface even with the ground. The streaks of lime are the only evidence of their former existence.

A point that is worthy of consideration is that El Fuerte, and numerous smaller hills or mounds have at different and widely-separated periods been partly excavated. As the later excavations and the heavy rains may have obliterated the original line of entry, it is impossible to say with any certainty about what time the earliest entrance to the works was made. It is evident that at one and doubtless the earliest period the larger number of graves and mounds were explored in a methodical manner by persons who understood their construction and easiest way of entry. In these earlier explorations the mounds and hills were entered by tunneling inward, from near the top of the mound, at an angle of about 80° . The mounds that have been thus entered also show signs of attempted entrance at the base, the most difficult way. Some mounds exhibit all the signs of excavations at different times. Some of the small hills (which I call mounds but must not be confounded with the purely burial mounds) show indications of having been approached at the center or slightly over the main stone foundation; and, like the excavations below the foundations they were made in a haphazard way, and do not exhibit those signs of systematic tunneling of the earlier entrance. A few mounds have been completely torn down so that, but for their stone foundations, little would remain of them. Mounds have also had their natural aspect altered perhaps very slightly by trees, of which the principal species is *Cereus Giganteus*. Wild animals have also displaced stones in their burrowing. I have seen parts of an artificial hill and small graves entirely excavated in this manner.

One of the main considerations in determining the possible antiquity of any mound excavation in this section is its position in relation to the floods. Foundations have been uncovered to the east of Teotitlan under an alluvial deposit of over 2 ft.—a strong evidence of their antiquity; the alluvial deposit in less favored places than this is yet much deeper; and, in other sections of the ruin-area, mounds and other constructions have not been covered but gradually denuded and washed away; therefore, any attempt at estimating the possible antiquity of the excavations and tunnelings must take into consideration the position of the mounds in relation to the floods, as they often wash away all signs by which the age of the excavations and tunnelings can be ascertained along these lines. Calculations as to the age of the mounds by the effect of the floods on them cannot be made exact, as the floods are constantly taking a new direction and forming new water courses; and as the mounds are of loose earth the effect of water on them would be greater than on natural hills. Hills of the same base area differed in height considerably; this could not be attributed to the tunnelings which were always the same and did not much reduce the height. Fine white powder of shells is seen in most graves, while in a few, similarly situated, the shells are whole. This might show a difference in age, but not the age. The effect of rain and winds

on exposed adobe walls is also a basis of calculation. Almost every evening a strong breeze blows from the mountains, and in certain parts of the year strong winds blow down the valley, raising a cloud of dust and sand which latter particularly affects the bare adobe walls, especially the corners. Weathering can easily be seen and calculated by comparing each adobe ("adobe" is the Mexican brick, and is about four times larger than the ordinary brick in use with us to-day) with the protruding stones that are stuck between them, not with decorative intent as some people suppose, but to strengthen them, and which at one time presented an even surface with the wall. The wearing away that this wind produces is more noticeable on high cliffs and on isolated buildings than on the buildings of the town, which are better protected by being whitewashed. As the adobe walls of the ancient ruins of Teotitlan are so small (the surface uncovered in different places measures only a few feet square) no accurate comparisons of wear could be made with the modern adobe wall; but it may be said from all the evidence deduced from a close observation, that the excavations that exposed the walls which we presume were the only ones made, must be about 100 years old. Very little information can be gathered from the natives, as they do not know or appear not to know, anything about the ruins, and if they were informed or had any knowledge, it is not likely that they would care to talk about them, being afraid of the authorities. The earliest tunnelings of these mounds and large artificial hills must have been made about 300 years ago. In making this calculation the main evidences are the holes or tunnels of the earlier excavation which have been so completely filled up by the rains that they can hardly be seen. As the holes at the top of the mounds are not affected by the floods, that originate in the hills above Teotitlan, they must have been filled by the natural precipitation and wind which, considering the scarcity of the former, must have taken about the time calculated. A few mounds remain unexplored; they may have been overlooked by the treasure seekers. The well-exposed ruins such as those across the Rio Salado, near Tecomavaca have been entered at the very latest times; this is also true of certain rather well-exposed ruins east of Teotitlan on the mountain spurs. The ruins of San Martin have been explored at a late date.

The ancient inhabitants of these districts seem to have been aware of the destructiveness of the floods, for they located their constructions in places where they would be least affected by them. Still the floods carried off a great number of their works and no doubt buried others. Taking into consideration the destroyed mounds, those yet standing, and the divers indications of small houses on both sides of the river, it is apparent that the former Indian population of Teotitlan was much greater than the present total mixed population of the village.

Petlanco is a name given to a flat area or basin of land situated about an hour's ride from San Antonio Nanahuatipuum. At the



FIGURINES FROM AZTEC RUINS OF SOUTHERN MEXICO

present day the Mexicans and Indians go there to bathe in the hot springs. Offerings are made to these springs by the Indians from the near-by Aztec pueblos; these presents to the springs or presiding deities are generally candles and cloths, but sometimes eggs have been found in the springs. Crosses of various shapes decorated with flowers are to be seen near the springs and tied to the trees and bushes in the vicinity where they have been placed by the superstitious natives. Petlanco is the dry bed of a lake that was fed by the river which has changed its course, and now runs into the Rio Salado. At the present day a number of Indians live in the basin, where they are employed in making large vats in the ground and gathering the salt which accumulates from the water oozing from the ground and evaporating. We noticed a large number of artificial mounds about 7 to 10 ft. high and some smaller mounds and graves; the hurried nature of our visit prevented us from investigating or even counting them; but at a conservative estimate we saw about 300 mounds of which over 50 were 10 ft. or more in height.

These mounds like those of the Mixteca and Teotitlan no doubt contain sea shells and dishes. Broken dishes were scattered all over the mounds and washed down their sides to the basin and carried

by the floods to the river where many fragments were picked up. Indeed, these pieces of pottery were so plentiful that they were found wherever digging had been done, and literally covered the mounds. Judging from the prevalence of shells in the Teotitlan graves where the entire shell is seldom found, as the natural conditions do not favor its preservation, their presence in the graves being denoted by mere fragments or a fine white powder in the Mixteca ruins and in Petlanco, it is evident that sea shells were highly prized by the different tribes.

Reverting to a further consideration of the ruins it was noticed that very few of the mounds of Petlanco showed any signs of having been excavated or tunneled, though I may be making a mistake in this conclusion as our survey was very hurriedly made. Some of the larger mounds have been tunneled into from the side, level with the ground, by the natives who now live in them—some of these mounds have doors affixed at their entrance and appear to have been used as dwellings for about 40 or 50 years.

To the west of Petlanco are several natural hills, and in the center of the basin several volcanic blow-holes rise to a height of 100 ft. at the top of which are the springs that bubble up and disappear. The sides of these hills are full of fissures; a flow of lava therefrom extends for some distance; indeed, there are several flows that are perhaps only distinguished by their different lengths. After collecting a few of the offerings that had been made to the springs by the Indians we descended the hills, the clattering of our horses' hoofs on the lava rang out with a bell-like ring, telling us plainly the nature of the lava crust over which we were traveling. The entire section was explored; the river passing Petlanco being followed up as far as possible, and then another trip was made by way of Ixcatlan to Tepelmeme and Concepcion from where we rode over the mountains striking Petlanco River which we again descended. On the banks of this river were noticed what appeared to be sections of a continuous wall of stone, which will be described later.

A trip was made to Pueblo Viejo (Old Town), which is situated not far from the Rio Salado where several mounds were seen. Some were uncovered, probably having been entered by Mexicans hunting for buried treasure, as such was the nature of the excavations. Here we also saw some stone foundations and a number of mounds that had been so thoroughly explored as to show some very narrow underground rooms, the average width being from 3 to 4 ft. and about 6 ft. in length. Their height could not well be ascertained as the floor was well covered with earth which had been washed in. Little of the thick layer of ground that covered the mound had filtered through as the slabs of rock were well hewn along the edges—some of the floors in the center of one mound were quite clean. The flat roof feature of the mound may be said to be the characteristic type of this section. The rooms ran thus +. The divisional walls between the rooms were

thick, and the low doorway was covered by a flat slab of rock. This lintel and parts of the wall were covered with plaster to a thickness of a quarter of an inch—this plaster was much the same as the lime plaster now used on the adobe houses of the Mexicans. This lime plaster painted red was not polished, as it could not well have been, but presented a rough uneven surface, without any writings or relief designs, but about a foot from the roof the wall had a sunken section 1 in. thick, 6 in. wide, and running sometimes the entire length of the wall. The ledge thus produced may have been intended to place idols on, but for this it seemed too narrow. While no writings were seen on the walls or on the sunken section it would appear that the sunken section was intended for that purpose. Another distinctive architectural feature was the walls, which were built of slabs of stone well hewn to a thickness of about 1 in. and 9 to 12 in. in width and of varying lengths. These thin slabs were evenly cut and well laid. The walls also had heavier stones in the center, the thin bricks being principally used for the entrance. The whole building was carefully constructed and was certainly superior to the adobe class of architecture seen farther up the Rio Salado and in Teotitlan. Large slabs 2 ft. wide, 5 to 6 ft. long and about 7 in. thick, evenly hewn especially along the edges, formed the roof and held up the thick layer of earth.

Notwithstanding that the mounds were isolated they were important graves or houses, and must have been opened about 80 years ago if not later, and doubtless contained valuable relics, possibly of gold and silver for which reason they attracted the attention of the treasure seekers. It is surprising and regrettable how many important finds have thus been made which, owing to the carelessness of the grave robbers or their ignorance, were melted into rings and other ornaments that could be easily sold. I have seen dozens of such rings made from rare gold idols. Another reason why these figures are melted by the finders is their fear of having them seized by the authorities, for the museums.

Near Mejia we discovered the ruins of rude adobe dwellings; all that remained of them was a trace of earth walls that had crumbled to the surface of the ground. It may be mentioned that we were able to select a few adobes that were very well made, but did not contain even traces of straw, which is here put into the modern adobe; they were otherwise similar. Here also a number of mounds were seen that owing to the action of the floods did not have the usual artificial signs, and, to discover whether the mounds were artificial or not a heavy stone was let fall where we thought the mound roof was thinnest. On the artificial mounds the sound produced was a dull thud, while on the natural hills the sound was, of course, different. By this method even the largest hills were sounded, but owing to the thicker layer of earth it was difficult to sound them at the top. However on the partly washed sides of the hill the thud was distinctly

heard—indeed, on some mounds, by merely stamping the feet, the artificial character could be detected. From reliable authority we heard that on the mountains facing Mejia the remains of a large stone idol, the legs of which were said to have measured 4 ft. in length, were to be seen; our efforts to locate it were fruitless. We were also told that on the top of the mountain where the idol was said to be found there were ruins, and that the principal ruin was accessible, having steps leading up to it. This, together with the fact that it is situated on an eminence capable of easy defense would indicate that it had its importance. However, this is pure supposition founded on hearsay.

LOUIS M. N. FORSYTH.

New Iberia, La.



EARLIEST NOTICE THAT THE MUIR GLACIER WAS RECEDING.—When writing my article on *Recent Variations of Glaciers*¹ I had not seen that written by Mr. Charles Hallock the year before my visit to the Muir Glacier in Alaska. My visit was made in 1886. Mr. Hallock's was in 1885, and, though lasting merely one day, his quick eye had observed the same evidences which I reported upon a year later, and which have been so fully confirmed by later observations. The paragraph relating to it is as follows:

" * * * Evidences are abundant that it [the Muir Glacier] is continually receding. They are scored high up on the abutting rocks by the adamantine ice. They are attested by the stranded debris of the lateral moraines, and recorded in the written narratives of Vancouver, who speaks of his inability to enter this bay in 1793, which is now navigable 14 miles inland. Once the ice-field was level with the distant mountain tops; now it has settled, with melting and thaw, until the peaks are far above the surface. The annual accumulations are dissolving and diminishing faster than they can be replenished, and centuries hence snow will no longer be perpetual in the valleys. The warm hills will throw off their useless mantle, and nothing will remain of the Muir Glacier except a goodly stream and some tributary rills leaping with a musical cadence from the vernal melting among the peaks. The deep and cavernous gully which now retains the sub-glacial outflow of the ice-field will become an estuary of the ocean, and the legend of the Muir will be illustrated in parti-colored tapestry lining the verdant slopes and meadows with flowers and foliage. Perhaps some goodly village will nestle at the terminal moraine, as it now does in the Matterhorn among the Alps. Then all the soil deposited in the valleys and upon the hillsides will tell us of the wear and tear which even now is grinding down the mountains, of the denudation, pulverizing, leveling, and filling up of which the glacier has been the potent agent since the world began."

G. FREDERICK WRIGHT.

¹See RECORDS OF THE PAST, Vol. VIII, p. 113.



FIG. 1. VIEW SOUTH FROM OUTLET OF GREEN LAKE, MINN. MOUNDS ARE IN MIDDLE DISTANCE, PARTIALLY COVERED WITH TIMBER

TRACES OF A VANISHED RACE IN KANDIYOHI COUNTY, MINNESOTA¹

KANDIYOHI County, Minnesota, is rich in the vestiges of prehistoric occupation. The antiquity of the majority of these indications is attested by their present environment. For instance—on the east shore of Green Lake, near its outlet, extends a tract of land swelling southward by gradual ascent into a high morainic prairie. Centuries ago it was a gravel-strewn, sandy and wind-swept peninsula pushing out into the commingling waters of what then were the northwestern extension of the present Lake Calhoun, Green Lake, and the south fork of the north branch of the Crow River.

In Fig. 1, as we face south from the present outlet of Green Lake the eye takes in the heavy woods now covering a portion of this once barren spot—their roots and tendrils, in many instances burrowing deep into the mounds themselves. To the right, following the curve of the shore, and as far inland as the illustration permits, is a glimpse of the former meeting place of the waters. Following a low, sandy road we reach the northeast extremity of this one time peninsula and find the vast reedy bed of a vanished lake shimmering in undulating sibilence at our feet. Beyond the broken fence the invading brush wood and young trees mark where an extensive ice ridge bears witness to the bleak winters and tempestuous springtides of prehistoric days.

To this peninsula—easily accessible by water—and only from the south by land—these Amerinds brought their dead for burial. Some 40 odd mounds of varying form and height resulted (Fig. 2) among them being the two long, low mounds, noted in the sketch, trending S-30°-E and S-55°-E, respectively. Their original height must have been 2 or 3 ft., now reduced fully one-half.

¹See earlier articles in RECORDS OF THE PAST, Vol. V, 1906, pp. 271-281, and Vol. VIII, 1909, pp. 102-108.

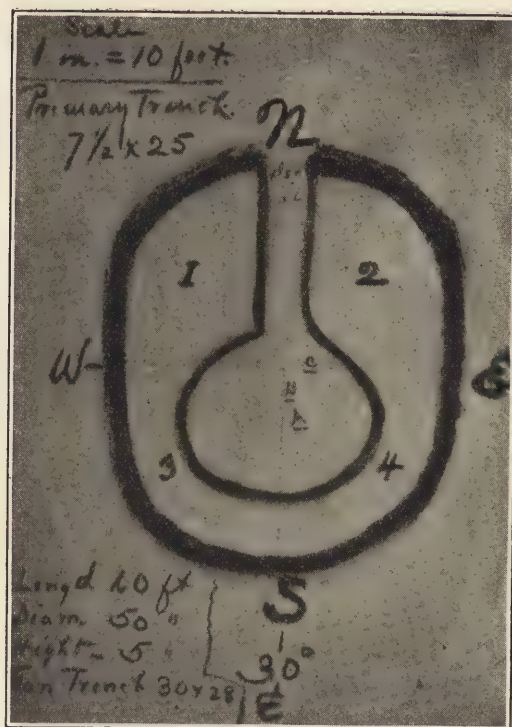


FIG. 3. SKETCH OF THE MOUND EXCAVATED AUG. 20-21, '07. MADE BY MR. A. N. GILBERTSON. REDUCED FROM ORIGINAL DRAWING SCALE, $\frac{1}{8}$ IN. EQUALS 3 FT. 9 IN.

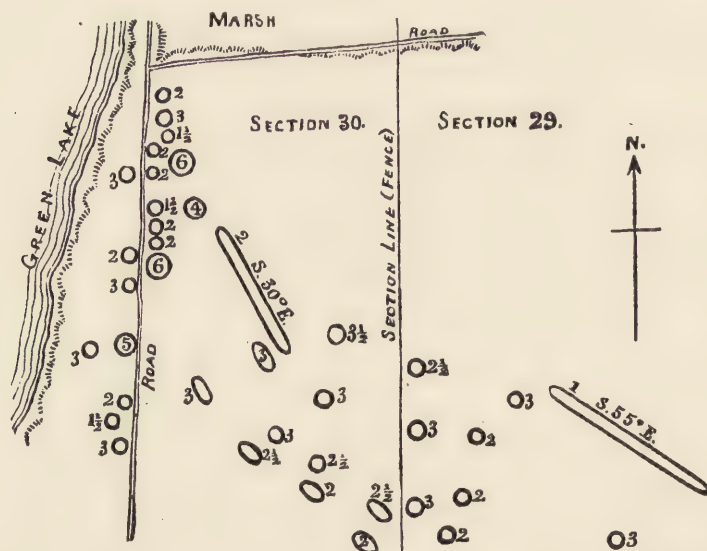


FIG. 2. MAP OF THE MOUNDS FROM DR. WARREN UPHAM'S SURVEY OF 1879



FIG. 4. LOOKING SOUTH ALONG THE MAIN AND FAN TRENCHES AT CLOSE OF FIRST DAY'S WORK. TAGGART MOUND IN BACKGROUND

As intimated at length by the writer in *RECORDS OF THE PAST*, Vol. V, No. IX, pp. 274-276, these are considered by some to be serpent mounds, representing the serpent in its dormant or quiescent state.

From an analysis of the earth so far obtained from these particular mounds, at three different and far separated points, it radically differs from the present surface soil and vegetable mold now covering this ancient site. This "mound soil" is rich and black, and throughout is mingled with fragments of stone weapons and implements, numerous flint, quartzite and granitic chippings, and, occasionally (found generally in contiguity with the skeleton) various symbols molded from a bluish clay, a grayish white as to surface, and mottled in places by a dark metallic enamel.

When cut into, the original color of this pottery is a delicate blue. If a fragment is pulverized it mixes with water to the consistency of putty, and rehardens on exposure.

That this "mound soil" was brought from some village site, or other place of common gathering, its nature and character make highly probable. The writer has been careful in excavating to dig away and lay back the present surface sod—when the distinct characteristics of this "mound mold," and its original relation to the virgin soil is at once manifest.

Not only has time covered the site of these mounds with a soil and verdure of its own, but a thick forest (Fig. I) of red, burr and black oak, mingled with elm, basswood, ironwood, poplar and many other varieties, has crept over the entire western side of this tract, extending inland eastward some 1,000 ft.

On August 20, 1907, through the courtesy of Mr. F. H. Harris, owner of the property, the writer in company with Messrs. A. N. Gilbertson, Hanson and Findlay, began excavations in the northernmost mound but one, marked 3 in Fig. 2. Measurements and a diagram were made by Mr. Gilbertson as the work progressed. (Fig. 3.) The mound was 60 ft. long, with an average width of 50 and a height of 5 ft. It trends exactly S-30°-E. Beginning at the north, a trench 7½ by 25 ft. was dug, and then widened into a fan trench with a length of 30 and a diameter of 28 ft. (Fig. 3.)



FIG. 5. BOULDER AND THE SHATTERED SKULL FOUND
AT POINT "A" ON THE PLAN

All the earth of this mound, while trenching, was carefully examined with the result that there were found the usual and characteristic fragments of pottery, flint chippings, etc. Fig. 4 shows the progress made in the primary trench at the close of the first day, and the first stage of excavation of the fan trench. In the background is seen the mound which was opened by the Taggart brothers some 30 years ago, and mentioned by Mr. Upham, in volume II, page 242, *Survey of Minnesota*. They found within it a "hollow chamber, dome shaped, about 3 ft. high, with a flat floor which was on a level with the base of the mound."



FIG. 7. FRAGMENTS OF THE SKELETON IN SITU,
HERE RESTING ON THE VIRGIN SOIL



FIG. 6. BASE OF SHAFT. REMAINS OF SITTING
FIGURE FOUND AT THIS POINT

On the morning of August 21, while working in the fan trench at "A" (Fig. 3) at a depth of 3 ft., a small granite boulder was encountered, measuring 36 in. in circumference, 15 in. in length, and weighing about 80 pounds. Immediately under it lay the fragments of a shattered skull. (Fig. 5.)

The boulder being carefully removed, a vertical shaft was sunk in the expectation of finding the rest of the skeleton: for from certain indications it was surmised that the body had been buried in a sitting position facing the northwest. We soon came upon evidence con-

firmatory of our supposition (Fig. 6) and upon further excavation uncovered the left femur, a portion of the tibia, a fragment of the right ilium, and the sacrum. (Fig. 7.)

There were several things in connection with the manner of the burial of this body, suggesting immolation. Everything, as found, pointed to a violent death *in situ*—that the victim had been placed alive, in a sitting posture, facing the northwest, the ponderous stone hurled upon his head—and the burial completed.

Attention is called to this boulder, a fine, close-grained granite. The part which rested on the broken skull is eaten away by contact



FIG. 8. THE REMAINS OF THE SKELETON FOUND IN THE PLACE OF PRE-EMINENT BURIAL, "B," FIG. 3

with the decomposing head to a depth of $\frac{1}{4}$ to $\frac{1}{2}$ of an in., and extends along the surface in a vertical gash for some 7 or 8 in.

The skull differs essentially from those hitherto found in these mounds. The latter are comparatively thin. This one is very thick, measuring from $\frac{1}{4}$ to $\frac{3}{8}$ of an in. in thickness. It is of an inferior type and reminds one of some of the cranial finds in the loess. The line of contact of the superimposed boulder is clearly defined in the photograph in the lighter tone, on the left of the suture, and extending backward diagonally across the point of fracture.



FIG. 9. THE REMAINS OF THE FOUR SKELETONS, POINT "C," FIG. 3.
THE SKULLS FILLED WITH SAND AND GRAVEL WERE
NEARLY IN PERFECT CONDITION WHEN FOUND,
BUT CRUMBLED ON EXPOSURE

Continuing our excavations toward the center, and on a line northwestward from "A" Fig. 3, on the same level as indicated in Fig. 7, we came upon part of a skeleton, evidently that of a man of large stature,¹ "B" Fig. 3, and consisting of the left ilium, the femora and tibiae (Fig. 8). These were preserved from decay because they were almost covered by the sand and gravel of the virgin soil, the mound-soil having obliterated the rest of the skeleton with its usual thoroughness. Is there any significance in the position of these two bodies, the one to the other? This remnant of a crouching figure, with its suggestions of mental and physical inferiority, its crushed skull facing northwestward under the heavy boulder, and, in front, but a few feet away, these fragments of a higher type occupying the place of pre-eminent burial?

At "C" Fig. 3, four skulls and several of the larger bones of the skeletons were brought to light. The skulls were filled with sand and gravel, and were in excellent preservation; but on exposure to the air crumbled rapidly, and only portions of them could be preserved. (Fig. 9.)

On August 22 we opened a small mound in Section 29, Fig. 2, some 3 ft. high, 20 ft. long, and 15 ft. wide. This mound with many others lies in a field that has been under cultivation for a generation, and its original size has been much diminished.

¹I am informed that from measurements recently made they indicate a man of over 6 ft. in height.

After cutting through some 14 in. of friable soil the original mound mold was reached, which grew denser and harder the deeper it was excavated, until it yielded only to the most vigorous use of the pick. In the exact center of the mound the remains of a large skeleton were uncovered: being the femora and the skull, the latter crushed out of shape.

The results of our excavations, both here and at other points, during 1907, were sent to Prof. A. E. Jenks, Department of Sociology, University of Minnesota, to whose interest and substantial aid whatever success has been achieved, is due.

HORATIO GATES.

The Rectory, Willmar, Minn.



BOOK REVIEWS

BEITRAGE ZUR KENNTNIS DES KARMELS¹

THE author of this monograph, a scion of an ancient Bernese family, and a pupil of Albert Socin's, spent a number of years in the Imperial German Diplomatic Service at Beirut and Constantinople, and was appointed in 1890 gentleman-in-waiting to the German Empress. Having been obliged to resign the latter position on account of ill health, he returned to Syria in 1905 and made a prolonged stay in Haifa and later on in the German sanatorium on Mount Carmel, where he employed his enforced leisure in a thorough and careful investigation of the surrounding country, the results of which are embodied in the work under notice. He was peculiarly fitted for the task both by his intimate knowledge of the Arabic language and the antiquities of the country, as well as by the experience he had gained of the manners and customs of the people in the course of his duties as attaché of the Imperial German Consulate at Beirut and in various journeys through different parts of Palestine and Syria.

The region described is remarkable in many ways. The greater portion of it lies within the confines of Mount Carmel itself, together with the adjacent strip of seashore; but the author includes in it a portion of the plain lying to the south of the mountain, since its soil is of the same ferruginous character as that of Mount Carmel and is sharply distinguished from the white calcareous soil of the surrounding country, the difference in geological formation also affecting

¹*Beitrage zur Kenntnis des Karmels*, by Count Eberhard von Mülinen, Part I and II. *Zeitschrift des Deutschen Palastina-Vereins*, vol. xxx, 1907, pp. 117-207; vol. xxxi, 1908, pp. 1-258. With 109 Illustrations, chiefly from photographs taken by the author, and two Maps.

the nature of the vegetation, which is richer and more diversified in the Carmel region. The fauna, too, is peculiar, a number of wild animals, such as the leopard and the wolf, occurring here, which are not found elsewhere in Palestine; and the inhabitants present many characteristics, both racial and linguistical, quite distinct from those of the people in the adjacent districts. Moslems, both peasants and Bedouins, Druses, Persian Bâbis, Catholics, Protestants, and Jews dwell on the slopes of the mountain in almost perfect harmony, although occasional quarrels between Druses and Bedouins may occur. The government is carried on by the village chiefs under the supervision of the authorities at Haifa, but there are no resident Turkish officials in the mountain district.

The oldest portion of the inhabitants are the Moslem peasants; that they are of very mixed race is scarcely to be wondered at when we recollect the number of successive waves of invasion that have passed over Palestine, each new wave driving the survivors of the former ones into the mountain fastnesses, and that Mount Carmel remained in the possession of the Crusaders for about 200 years. The author distinguishes two main types, the one tall, robust, and blond, the other small, dark, and well proportioned; but similar types may be found side by side in other parts of Syria and Palestine. The Bedouins are at the present day of very little importance, although 200 years ago they ruled over the mountain. The rest of the population has settled on Mount Carmel within recent years. Since there are no government officials in the mountain district, the Turkish element is completely lacking.

The chief interest centers around the numerous ruins, both prehistoric and mediæval, which have never been systematically examined until now. Few of the many travelers who visit Palestine ever think of turning aside from the beaten track to explore this mountain, so rich in natural beauties and historical associations, and the author has had ample opportunities for making new discoveries in this long-neglected region. He has visited and described the ruins of more than 20 Crusaders' castles which are not marked on any of the maps hitherto published; and the numerous prehistoric ruins, among which are several sanctuaries or "High Places," appear to have equally escaped the notice of former travelers.

The greater number of the castles built by the Crusaders are situated on the eastern slope of the mountain and form a continuous chain extending from a point nearly above Haifa far to the south. These fortresses commanded the road leading along the foot of Mount Carmel from the sea coast to the plain of Esdraelon, and at the same time protected the important castle of Athlith on the coast, the *Castellum Peregrinorum* (*Château des Pèlerins*) of the chroniclers, which on the north was sheltered by the promontory of Carmel running down to the sea, and on the south was guarded by a line of smaller forts stretching along the sand dunes. Among the best preserved of these

castles are the Chirbet Rushmia, near the German sanatorium (Part II, pp. 32-34), and el-Kerak in the southern part of the mountain (ibid. p. 133); but the greater number appear to be completely ruined, the crosses sculptured on the building-stones affording in some cases the only means of identifying them. The castles on the seaboard are in a better state of preservation, and the author has been able to give some good photographs of those at et-Tîre (ibid. pp. 60-61) and Athlith (ibid. pp. 173-176).

Roman ruins are found at several points on the mountain (see pp. 80, 139, 208, etc.); the villa described on p. 80 is of especial interest on account of the richness of its decoration. We are inclined to regard the towers mentioned on p. 119, which the author refers to the stone age, as Roman watch- or signal-towers. The one represented in Fig. 50 closely resembles many of the Roman towers in the East Jordan country; and since the great Roman camp of el-Lejjûn was situated not far to the southeast of Mount Carmel, we should certainly expect to find watch-towers placed upon this important point of vantage.

Among the prehistoric ruins described in this work one of the most interesting is that called A'râg ez-Zighân, which is treated of by the author in great detail on pp. 37-46, and with its niche (the photograph of which, Fig. 17, is placed upside down), its great cromlech, and its other buildings appears to have formed a sanctuary of some sort, although it cannot be considered as a genuine "High Place." An example of the latter class is found at the extreme southern end of the mountain, at Nebi Tâtâ (p. 246), and, although actually used as a Moslem shrine, is rightly considered by the author to go back a remote antiquity.

We cannot enter into all the interesting details with which this work abounds, but the foregoing selection will give a sufficient idea of the rich mass of material the author has collected.

The formal disposition of the work is hardly less admirable than its contents. The first part (*Allgemeiner Teil*) treats of the dialectical peculiarities of the region, its geographical boundaries and geological formation, its flora and fauna, and its inhabitants, the religious, political, and economic condition of the latter being described in great detail. There is hardly any subject connected with the life of the people that is not touched upon; and an appendix containing two short tales in Arabic with translations gives a specimen of the language spoken by them and affords an insight into their way of thinking.

The second part (*Spezieller Teil*) is devoted to the description of the mountain, its villages, and its ruins, and is arranged topographically, so that it may be used by future travelers as a guide-book to the region. This arrangement has the disadvantage of separating things that properly belong together, and it would, in our opinion, have been preferable if the descriptions of the various ruins and monuments had been placed in a chapter by themselves, with cross-references to the

topographical part. At least there should have been an index enabling the reader to look up all passages relating to any particular class of monuments. The omission of head-lines to the pages, due probably to the mode of publication in a journal, is also a serious inconvenience, especially in the second part. We trust that the author will remedy these slight defects in the enlarged English edition of his work which he contemplates publishing, and which we trust will not be too long deferred. As the author composed his work while in the Holy Land, where he had but few books at his disposal, he was unable to give references to the works of his predecessors; these references, we trust, will also be added in the English edition.

In the meanwhile, no lover of Palestine capable of reading it in the original should fail to acquaint himself with the contents of this scholarly and carefully written work. As these lines are being written, we hear that the author has been appointed consul-general of the German Empire at Damascus, a position which will afford him the most favorable opportunities for further investigations in the fields of Syrian ethnology and archæology.

RUDOLPH E. BRÜNNOW.

Princeton, N. J., May, 1909.



PEERLESS ALASLA²

All classes of readers will be equally interested in this valuable book upon Alaska. In it he will find the facts most helpful to the tourist, as well as those for the economist, the anthropologist, the glacialist, and the historian. The illustrations are most interesting and helpful. No one can read the volume without partaking of the author's enthusiasm for his subject.



ANCIENT PERSIAN LEXICON AND TEXTS³

This volume, numbers 2 and 3 of vol. 1, of *Vanderbilt University Studies*, presents on opposite pages a transliteration and a translation of the inscriptions of Behistan, Persepolis, Naks-i-Rustam, Susa, Suez, Kerman, Elvend, Van, Hamadan and Murghab as well as a few seal, weight and vase inscriptions. A lexicon of Ancient Persian occupies the latter portion of the book.

²*Peerless Alaska*: Our Cache near the Pole. by Charles Hallock, M.A., Founder of "Forest and Stream," and Dean of American Sportsmen. Pp. 224; 18 illustrations. \$1.25. Broadway Publishing Company, New York, 1908.

³*Ancient Persian Lexicon and Texts of the Achæmenidan Inscriptions Transliterated and Translated with Special Reference to Their Re-examination*. By Herbert Cushing Tolman, Professor of the Greek Language and Literature, Vanderbilt University, pp. xii, 134. Vanderbilt University, Nashville, 1908.

READINGS IN MODERN EUROPEAN HISTORY¹

This volume although in text-book form is of wider interest than ordinary text-books and so of value to general readers. It is prepared to accompany the *Development of Modern Europe*. The special value and interest of the book lies in its being a compilation of contemporary historical writings covering the "XVII century, the French Revolution and the Napoleonic Period." A second volume on Europe since the Congress of Vienna is in preparation. A condensed bibliography of 22 pages adds greatly to the value of the book.



EDITORIAL NOTES

OLDEST MUSICAL INSTRUMENTS.—Dr. J. C. Bridge maintains that the horn and flute are the oldest musical instruments.

EXCAVATIONS OF ROMAN FORT AT NEWSTEAD.—The Society of Antiquaries of Scotland has been carrying on excavations on the Roman fort at Newstead. About 2,000 relics have been taken out.

STATUE IN TOMB NEAR THEBES.—Reports say that Mr. Theodore M. Davis has found a magnificent alabaster statue of the wife of Tut-ankh-Amen, Pharaoh of the XVIII dynasty. It was found in a tomb at Thebes.

WASHINGTON ANTHROPOLOGICAL SOCIETY.—At the annual meeting of the Washington Anthropological Society, held on April 20, Dr. J. Walter Fewkes was elected president; Mr. James Mooney vice-president, and Mr. John R. Swanton, secretary.

REMAINS OF IRON AGE IN SCOTLAND.—At a recent meeting of the Society of Antiquaries of Scotland, there was given an account of the excavation of two cairns containing remains of the Iron Age. Finds included a quernstone, a whetstone, iron knife (5 in. long), iron spearhead, iron nails, a pick made of an antler, a spindle-whorl of deer horn, bone buttons, two bracelets of colored glass, fragments of pottery, and pieces of Samian ware.

¹*Readings in Modern European History*. A collection of extracts from the sources chosen with the purpose of illustrating some of the chief phases of the development of Europe during the last 200 years. By James Harvey Robinson, Professor of History in Columbia University, and Charles A. Beard, Adjunct Professor of Politics in Columbia University. Volume I, *The Eighteenth Century: The French Revolution and the Napoleonic Period*, pp. xx, 210. Ginn & Co., Boston and New York, 1908. Postage paid, \$1.50.

NATIONAL MUSEUM OF ARCHÆOLOGY AND HISTORY OF MEXICO.—“By an executive decree of January 28, 1909, on February 1 of that year the departments of natural history of the National Museum of Mexico became an independent establishment under the name of ‘National Museum of Natural History,’ and the institution which has hitherto borne the name of National Museum became the ‘National Museum of Archæology and History.’”

FRAGMENT OF ANCIENT GREEK EMBROIDERY.—In the Eremitage at St. Petersburg are fragments of a piece of ancient Greek embroidery, probably the only such piece in existence. It was found in the Crimea near Kertsch in the Kuban district, preserved by the presence of saltpeter in the tomb. One of the fragments shows Greek inscriptions and designs in the style of vases dating from the time of Pericles. It shows that the Greeks favored rhythmic lines, graceful spirals and curves in the textile industry as well as in pottery and metal work. The background is a fine claret-red material. The fragments when fitted together, form a piece $5\frac{3}{4}$ in. broad. The design is graceful, artistic and well conceived.

RELICS OF CAVE-DWELLERS.—Interesting discoveries in a cavern at Wookey Hole in the Mendip Hills, near Wells, England, have been reported. “Perhaps,” says the *Daily Telegraph*, “the finest known deposits of the relics of the cave-dwellers of the period which preceded and coincided with the Roman occupation of Britain has been brought to light.” Near the surface were fragments of Roman pottery, human remains and a few coins. Lower were bone, bronze and iron objects with pottery and bones both human and animal. Some Celtic objects from an earlier period including sepulchral urns and cooking vessels, some of which were beautifully decorated, were also brought to light.

THE WRITTEN DOCUMENTS OF MINOAN CRETE.—“The Clarendon Press will shortly issue the first volume of *Scripta Minoa: The Written Documents of Minoan Crete* by Dr. Arthur J. Evans. It deals specially with the earlier pictographic script. The first part is of an introductory character, giving a general view of the progress of the discoveries, the successive types of script, and their relation to one another. The chronological limits of each class and its respective place in the history of Minoan civilization are indicated and by means of numerous tables comparisons are instituted with the early scripts of Cyprus, Anatolia and Phœnicia.

“In the second part, the evolution of the hieroglyphic system of Crete is traced from the more primitive pictographs. Pictographic plates and copies are given of all the documents of this class and a *catalogue raisonné* of all the characters yet discovered; and various formulæ are critically examined.” [Athenæum, London.]

CINERARY URNS IN SURREY.—Three cinerary urns of different sizes and shapes were found in December at Puttenham, Surrey, England. There was also a bronze brooch or fibula, apparently of the Romano-British period. The largest urn is $9\frac{1}{2}$ in. high, the others $3\frac{3}{4}$ in. by $4\frac{3}{4}$ in. and $1\frac{1}{2}$ in. by 5 in. They are of light grayish ware without ornamentation. Each contained cremated remains; the earth in them was composed mainly of bone dust.

BRITISH SCHOOL TO EXCAVATE ON MALTA.—The British School of Archæology at Rome plans to begin in May a study of prehistoric remains on Malta. Here new examples of dolmens have been discovered recently. The most important monuments, however, are the sanctuaries of Gigantia, Hagar-Kim and Mndidra which seem to have been originally burial places and later became the seats of hero worship. Dr. T. Ashby and Mr. T. E. Peet will carry on the work.

WORK AT DELOS.—In a paper before the French Archæological School at Athens, M. Holleaux reported progress in the explorations at Delos. Traces of two large buildings, probably temples, have been uncovered next the temple of the Delians previously identified. One is identified as the Temple of the Athenians. A semi-circular base with sockets for 7 statues was found, indicating that this was the "Temple of Seven Statues" as the Temple of the Athenians was usually called. The other building M. Holleaux considers the "poros temple" mentioned in the inscriptions.

CIVILIZATION OF LEUCADIA.—In upholding his theory that Leucadia is the Homeric Ithaca, Doctor Dörpfeld maintains that the quantities of earthenware, weapons and domestic implements found there "show great similarity to the objects discovered at Zerella by Mr. Ware and at Sesklos by M. Tsountas, and in the second City of Troy." Doctor Dörpfeld believes them the work of an Archæan civilization in northern and western Greece, contemporary with the Mycenæan Age. These remains are primitive in artistic value and their adaptation to practical needs—a difficulty explained by the fact that this was on the outskirts of the Achæan civilization.

EDUCATIONAL WORK OF HULL MUSEUM.—The Hull Museum (England) recognizes the educational possibilities of an institution of its kind and accordingly arranges to have classes accompanied by teachers visit the museum during school hours. The Curator gives them a lesson, using the museum specimens as illustrative material. Usually about an hour is allowed after the lesson for looking around. Local history is naturally prominent among the subjects treated, but broader topics such as *Prehistoric Man*, *The Romans in*

Yorkshire, Races of Mankind, as well as various branches of natural history are also presented to the classes.

RELICS FROM PERU.—An English antiquarian, Mr. Hewitt Myring, has recently collected some 2,000 specimens of pottery and weapons of the ancient Peruvians. The relics were found under an old Inca burying ground 200 miles inland from Lima. In each grave were found remains of food and glazed clay jugs. Great urns, some of them 6 ft. long and so heavy that it required 3 men to carry them, were found buried beside mummies. Most of them had the features of the dead carved either on the upper part of the urn, or on a solid stand beneath.

ANIMISTIC FORMS OF FLINTS.—Lieutenant-colonel Underwood read a paper in December before the East Anglican Society of Prehistorians on *Animistic Forms of Palaeolithic and Other Flints Found in the Ipswich and Dovecourt Districts and Other Places*. Among other things he said in substance: "All art must have had a beginning, and the evolution of art doubtless sprang from early man noting the remarkable likeness of flint nodules to animal forms and improving these by a chip here and there, thereby producing an eye, a snout or a pedestal. He contended that this supposition was infinitely more probable than that all these fractures in the proper place were purely accidental coincidences."

DEATH OF PROFESSOR MAU.—Prof. August Mau died on March 6, 1909. Although born at Kiel, Germany (1840), Doctor Mau spent most of his life in Italy. As a member of the German Archæological Institute in Rome he carried on important work in connection with the restoration of Pompeii and other ancient cities. On his 60th birthday, American friends sent him a gift of several thousand dollars, which he used in having copies made of paintings found on the walls of Pompeian ruins, which copies were sent to American universities and institutions. Among his writings are *Geschichte der Decorativen Wandmalerei in Pompeii*; *Pompeii in Leben und Kunst*; *Führer durch Pompeii*; and *Pompeianische Beiträge*.

EXPLORATIONS AT TAKHT-I-BAHI, INDIA.—The Government Archæologist for the Northwestern Frontier Circle in India writes of the explorations at Takht-i-Bahi: "We have here not only one of the most valuable sites on the frontier, but, indeed, one of the most interesting of the really ancient sites in India. In matter of style and artistic feeling as well as of execution the range is from the extreme of excellence to the extreme of degeneration. Apparently Takht-i-Bahi was founded in those remote times when Gandhara art was at its very height, and occupied from that time until the school

had nearly run its course. No other theory would explain the extremes met with. It is already clear that Takht-i-Bahi must have always been one of the chief centers of the Buddhist cult in those regions."

THE POSSIBLE IDENTIFICATION OF THE AHASUERUS OF ESTHER WITH ASTYAGES.—In the article upon *Solar Eclipses in Ancient History*, in the RECORDS OF THE PAST for November-December, 1908, p. 280, the above identification was referred to as possible and probable. A correspondent points out that in a previous paragraph it is stated that, according to Scaliger and others, the names Cyaxares and Ahasuerus are identical, the one being the Grecized form of the other. The apparent discrepancy would have been removed by the insertion of a single sentence stating that Ahasuerus, like Pharaoh and Caesar, was a dynastic and not a personal name. The ordinary identification of the Ahasuerus of Esther with Xerxes would encounter the same difficulty as would the identification with Astyages.

PLANS FOR THE NEW MEXICAN MUSEUM.—The board of the newly established New Mexican Museum held its first meeting on April 7, 1909. Judge John R. McFie was elected president; Dr. R. W. Corwin, vice-president; and Mr. Nathan Jaffa, secretary and treasurer. An executive committee consisting of Governor Curry, Mr. Jaffa and Judge McFie was designated. This committee was directed to proceed with the restoration of the Old Palace in conformity with old Spanish architecture. The Old Palace was accepted for the Museum, and the committee directed to take possession as soon as proper arrangements for lighting and heating could be made. The executive committee was also instructed to draft rules and regulations for the government of the board and the Museum, the rules to be adopted by a two-thirds vote of the board.

CHRISTIAN REMAINS AT WAD-EL-HADAD.—Professor Sayce reports the discovery of early Christian remains at Wad-el-Hadad, on the Blue Nile, where the foundations of a rest-house for the Irrigation Department were being dug. "A number of graves were found containing skeletons, with feet to the east. Round the head of each was a quantity of pottery, consisting of bowls and jars, all in a good state of preservation. The bowls are, for the most part, of dark clay and decorated with Nubian patterns. On one of them is a Coptic processional cross, and the same emblem is scratched inside the lips of the jars where it is associated with two other Christian emblems, the fish and the palm-branch." "The chief interest of the discovery lies in the fact that it is the first time that Christian remains have been found so far south." At a little distance from the graves are two mounds called by the natives Beyt-el-Anak—the House of

Anak—which probably mark the site of the church and monastery. The ruins are probably from the VII or VIII century.

WORK AT CORINTH.—At a meeting of the American School of Classical Studies held in Athens, Mr. B. H. Hill told of the work carried on at Corinth in the exploration of 4 chief centers—the Agora, the Fountain of Glauce, the Theater and the Fountain of Peirene. On the Agora site were found the foundations of a small sanctuary with remains of friezes, architraves and cornices, also a colonnade of 15 Corinthian columns with their capitals ornamented with simplified acanthus, lions' heads, claws and wings. As there were numerous fragments of the pediments, a complete restoration seems possible. Near the columns was a stairway, leading to a large temple 60 yards to the west. The walls of an ancient aqueduct of early Christian times were discovered near the Peirene fountain. Four reservoirs, carved out of the rock and vaulted, were unearthed. Among the Christian debris were found 4 statues. The discovery of the ancient road to Sicyon is important in determining the orientation of certain buildings mentioned by ancient writers in relation to the Sicyonian way.

DOCTOR MACKENZIE'S WORK IN SARDINIA.—At a recent meeting of the British School at Rome, Dr. Duncan Mackenzie read a paper covering his work in Sardinia during 1908. An interesting specimen of the nuraghi was examined at Voes, in the north central part of the island. "It is a massive triangular building, of a strongly fortified character, with the entrance on the south side. On the ground floor are 4 circular chambers with beehive roofs; that in the center of the triangle is the usual central chamber of the nuraghe while the other 3 are within the angles of the triangle, which have rounded external contours." A small, open court with a doorway at each side opening into the chambers in two corners leads to the central chamber. On the left of the entrance is the stairway to the upper story (no longer extant) and on the right the guardian's niche. In the thickness of the wall are two long, curving corridors, which were, perhaps, places of refuge in time of war; above these are other corridors.

Near the village of Paulilatino in the center of the island is the fortress of Nossia, a nuraghe of a type hitherto unknown. The building is a fortified "quadranglar citadel of irregular rhomboidal shape, with a round tower at each corner, and the center is not the main ground-floor beehive chamber which forms the true heart of every nuraghe, but an open quadrangle with stout walls." The towers at the corners are entered from the interior of the court yard. The central space originally contained circular huts, some traces of which remain. This nuraghe, evidently surrounded by huts, was possibly the citadel of an independent village, instead of being the residence of some chief, as seems to have been the case with most of the nuraghi.

Doctor Mackenzie also found several examples of dolmens, only one clear example of which had been known previously on the island.

These discoveries give more evidence for the supposed development of the "tombs of the giants" from dolmens. "The first of these to be studied was the rock-cut tomb of Maone, near Benetutti, which, while it has the characteristic large cover-slab of the dolmen, consists of a rectangular chamber cut in the rock, the upper part only of the sides being constructed of rough-coursed masonry; whereas the sides of a normal dolmen are constructed of orthostatic slabs."

Another, the dolmen tomb of Su Coveccu, is of a more advanced type, nearly a "giant's tomb." The cover-slab is there, but broken longitudinally; a second one was probably present to cover the front of the cella. "The slab was supported by orthostatic slabs at the sides and the back; and behind there are traces of an apse-like wall of enclosure, which, carried along toward the front on either side of the walls of the cella, is a characteristic feature of the 'tombs of the giants,' but is also an intrinsic element in the dolmens in localities where 'tombs of the giants,' do not exist."

Not far from this last, are two "giants' tombs." One has the frontal semicircle constructed of orthostatic slabs, with rough-coursed masonry above. A unique feature was a hidden entrance into the cella at one side, in addition to the usual small hole in the center of the façade.

EXCAVATIONS AT JERICHO.—Excavations on the supposed site of ancient Jericho, a collection of mounds not far from Ericha near the Dead Sea, have brought forth interesting results. There were 7 mounds in the area investigated. Eight feet below the surface, the exterior wall of the city was found. It consisted of 3 parts. "The natural rock foundation is overlaid with a filling of loam or fine gravel a meter or so deep upon which a sloping rubble wall, heavily bulging externally is superimposed to a height of 20 ft., the breadth being from 6½ ft. to 8 ft. The wall is built of well-laid rubble, which becomes finer toward the top. Enormous blocks are partially employed for the lower part of the wall. Every interstice is most carefully filled in, so as to offer no advantage to the implements of destruction of a hostile force. Finally, upon this imposing foundation is the fortification wall, properly built of clay-bricks." In one place the brick wall is 8 ft. high, but seems to have been higher originally. It is estimated that the walls extended 900 yds.; 450 yds. have been laid bare. "To the north the fortifications are breached by a large heap of rubbish which would seem to indicate that enemies must have penetrated here on some occasion."

Inside the wall was a double-walled citadel with corner towers. Below it are the remains of older houses, probably of Canaanitish times. Two areas were laid bare in order to study the domestic architecture and implements of the buildings of Jericho. At one point Moslem graves appeared first, then relics of late Jewish-Hellenistic times, characteristic sherds and jugs, handles with Rhodic stamps and

afterward with Aramaic legends. At last, the well-preserved ruins of about 30 houses with common connecting walls and separated in one direction by a narrow lane were found. The walls were standing 3 ft. high. Door apertures were intact and one sewer was found. The exact line between Canaanitish and late Jewish could not be determined, but the site seems to have been occupied from 2000 B. C. until nearly the beginning of the Christian era. All the houses are one-roomed.

Roughly classified, the finds belong to 3 periods; the articles found in the purely Canaanitish houses in the citadel; the Israelitish remains discovered in the middle of the plateau; objects from the large settlement on the north slope between the citadel and the outer wall. Among the Canaanitish pottery fragments 4 periods were traceable. The older vessels have rims clamped on to aid in holding them on the head. Others were neckless kettle-shaped vessels and amphoræ with necks and side handles. All are thick-walled, often covered with white glaze and sometimes painted with stripes of yellow ochre. The fact that the Canaanitish pottery disappeared suddenly points to an utter destruction of the city. There was no trace of any Babylonian or other eastern influence. No bronze was found.

In the Israelitish settlements numerous articles of domestic use were found. The discovery in one of the houses of two Cyprian jugs of red earth indicated the date as the VIII century B. C. One house, evidently abandoned because of a fire, was well preserved. It had an uncovered courtyard. Water vessels, dishes, plates, jugs and amphoræ, a red sandstone mill for grinding grain, lamps, torchsockets, iron vessels and handles of deer horn were discovered. The earthenware was variously decorated, some with concentric circles, others with white and red on a dark background, or red on a light background. Some are similar to the ceramics of Crete.

A still later deposit was found near the so-called Well-Hill in houses immediately under the top soil, where fragments of Attic vases of the V and IV centuries B. C. were unearthed. Coins of early Byzantine times were picked up. Certain glass vessels, it is thought, will be of great value in tracing the history of Oriental glass work.

FINDS NEAR THE MONS JANICULUM, ROME.—Mr. George Wurts, the present owner of the Villa Sciarra at the foot of the Mons Janiculum, Rome, found in 1906 many marbles while laying the foundations for a gardener's house. Among them was a votive altar to the Syrian god Addoas, one to Jupiter Keraunios or Fulgurator and to the Nymphs Furrinæ, and a Greek inscription concerning certain works accomplished by a devotee named Gaionas. [See RECORDS OF THE PAST, Vol. VI, 1907, p. 344.] The texts discovered showed that the lower part of the old Villa Sciarra marked the site of the sacred grove of Furrina where Caius Gracchus was put to death in 121 B. C.; also that the springs in the grove brought about the

evolution of the old local goddess Furrina into a group of aquatic Nymphs; lastly, that at the time of Antonines a section of the grove and at least one of the springs became the property of a Syrian colony which was given permission to build a national chapel and to set up a fountain for the use of its attendants.

In view of these facts, Prof. Paul Gauckler undertook a thorough examination of the ground. It has been found that the original sanctuary built by Gaionas toward the end of the II century must have come to grief because of unfavorable position and therefore another was built at a higher level. This has no foundations and is of poor materials but its plan is remarkable. "It comprises a central assembly-room of considerable dimensions, facing east with a triangular altar in the middle, and a square one in the apse over which a mutilated marble statue was lying, probably of a Jupiter Serapis, or a Romanized Baal." Around are 5 or 6 chapels in which the triangular shape prevails. On February 6, 1909, at the eastern end of the group a large triangular altar with a rim or raised border was discovered.

Two feet below the floor were statues of gods; one, perfect, represented Bacchus, with head and hands heavily gilded; the other is an exquisite image of a young Isis which Lanciani believes to be an original Egyptian work. This statue, which is of black basalt, appears to have been knocked off its altar or pedestal by a blow on the forehead, which broke it in pieces. The pieces, however, are well preserved.

The most important find of all was within the high altar of the main chapel, beneath the feet of the Jupiter-Baal. In a hiding place about 1 ft. square, lined with plaster, part of a human skull was found. "There were no traces of jaws or teeth or incinerated bones, nor of goblets, medals, jewelry, and other such funeral *Κειμήλια*. The section of the skull appears to have been neatly cut, to fit the size of the hole which was to guard the secret of its origin for nearly 20 centuries." Professor Gauckler advanced the conjecture that we may have in this piece of skull the evidence of a human sacrifice "of consecration." This would be the first evidence of a human holocaust ever found in Rome.

In the triangular altar at the eastern end of the building was found a similar hiding place containing a bronze (?) figure of Mithras Leontocephalos (?) wound with the coils of a snake, whose head bends forward above that of the god. Five chicken's eggs were left as food for the snake, one placed at each coil. In some way these were broken, so that their yokes mixed with dust and lime encrusted the figure making identification uncertain until taken from the hiding place. It is hoped to remove the altar bodily to the Museo Nazionale, where a more thorough examination will be possible. These discoveries are important in connection with the study of the practise of foreign superstitions at Rome.

Professor Gauckler attributes the fact that the statues were found concealed to some such incident as this: about the middle of the IV

century the worshipers in this Syrian chapel must have joined forces with the worshipers of Mithras who were engaged in a war against the overpowering Christian influence; they must have had to face the same decree of suppression issued by Gracchus in 377, which put an end to the practise of foreign superstitions in Rome.

Mr. St. Clair Baddeley believes this was not a Mithræum, considering the gods Semitic, not Arian. "The bronze figure," he says, "is more probably the Dea Syra, or Atargatis, child of the Dragon, that coils around her in 6 folds, and whose crested head rests upon her forehead."

THE HARVARD EXPEDITION TO SAMARIA.—In April, 1908, an expedition from Harvard University (the expenses paid by Mr. Jacob H. Schiff, of New York) began work on the site of Samaria. Actual digging was continued from time to time until late in August. It was originally intended that Prof. George A. Reisner should have charge of the work, but as he was engaged in work in Egypt, Dr. Gottlieb Schumacher, of Haifa, was put in charge. Professor Reisner, however, looked over the ground, and with Doctor Schumacher planned the campaign. Other members of the party were Mr. David Gordon Lyon, Mr. Clarence S. Fisher, and Mr. Oric Bates.

The site is a hill rising about 350 ft. above the surrounding valley and about 1,450 ft. above the sea. The ascent is steep, but is less so on the eastern side. The hill is terraced and under cultivation. On the eastern slope is the village of Sebastizeh, while the western slope is partially occupied by the ruins of two towers, flanking the gateway through an ancient wall. The principal path runs from this gateway to the town, passing a long row of columns—forming part of a colonnade erected by Herod. Above the town is the thrashing floor, west of which is a group of columns. North of this, about half way to the valley, are other columns. Fragments of columns and carved stones from ancient buildings are built into the houses of the village and lie about the streets.

The work was carried on at two points, among the columns near the thrashing floor, and on the summit and the two terraces immediately west. At the first point, terraces were dug to the north; rude stone walls were first found. Lower, a wall of dressed blocks of stone was encountered. Various pits and trenches were dug, revealing the bases of columns and the foundations of the building which has been considered an Herodian temple. Evidently much of the masonry was built of blocks not in their original position. At one point there appeared to be the remains of the apse of a church, probably of the Byzantine period. The original building was evidently a Roman temple. More than 200 lamps of the Arabic period were found near the surface, and, deeper, broken Roman roof tiles, fragments of glass vessels and of Greek and Roman pottery.

At the two terraces, trenches were dug, resulting in the discovery of foundations and walls of different periods. Some were probably of Arabic origin, and others were Hebrew. There were also fragments of pottery, some of which were Hebrew.

On the summit, where most work was done, a stairway of 16 steps was found. The longest step measured 73 ft., but there is evidence that originally they were all 80 ft. long. There must have been two more in order to reach the platform at the top. There is also another step at the bottom, but it is of much softer material, and probably belongs to a different period. Above the stairway and 12 ft. distant from it, is a platform paved with thick slabs varying in size. At present it is nearly rectangular, 57 by 27 ft. East of the stairway is a wall of large blocks of stone; in line with this, but not bonded to it, and with the courses not matching it, is a wall bounding the platform. South of the platform, the foundations of the wall continue, set about a foot to the west. It was not followed to the end by the explorers because of lack of time. This was probably the eastern wall of a temple. On the west of the stairway and platform, is a boundary wall better preserved. Both are now several feet below the platform, and are probably of an earlier date.

West of the stairway a large chamber was cleared. It was cut partly from the solid rock. The roof was an arch, one course of which remains in place. The walls had been plastered, and perhaps, colored.

A stele nearly 4 ft. high was found on the bottom step of the stairway. It has on it a Latin inscription which Professor Moore, of Harvard, translates thus: "To Jupiter Optimus Maximus; Soldiers of the Sixth and Twelfth Cohorts of Upper Pannonians, two (?) citizens of Siscia (and) Varciani and Latobici, have made this dedication." The date of this seems to have been after the Jewish war under Hadrian, 132-134 A. D.

The torso of a statue of heroic size was another of the finds. It was carved out of a block of white marble. The head, arms and legs are gone. The head, left arm and one of the legs were attached by dowels. There is a robe thrown over the left shoulder, and a breast-plate covers the body. It appears to have been the statue of a Roman Emperor, possibly Augustus, but by a change of head it may have been made to serve for later emperors. A fragment of a head was also found, but as the workmanship was much cruder, it probably belonged to another statue. A Roman altar was discovered near the torso.

The work has not yet progressed far enough to make definite assertions as to dates possible. Several periods are represented. Most of the buildings so far excavated seem to be later than the Roman annexation of Palestine. The wall surrounding the platform is probably Herodian, while the platform itself and the stairway are younger. It is hoped that the work to be done in 1909 will make the dates more certain as well as clear up some other questions. [For fuller details see *The Harvard Theological Review* for January, 1909.]

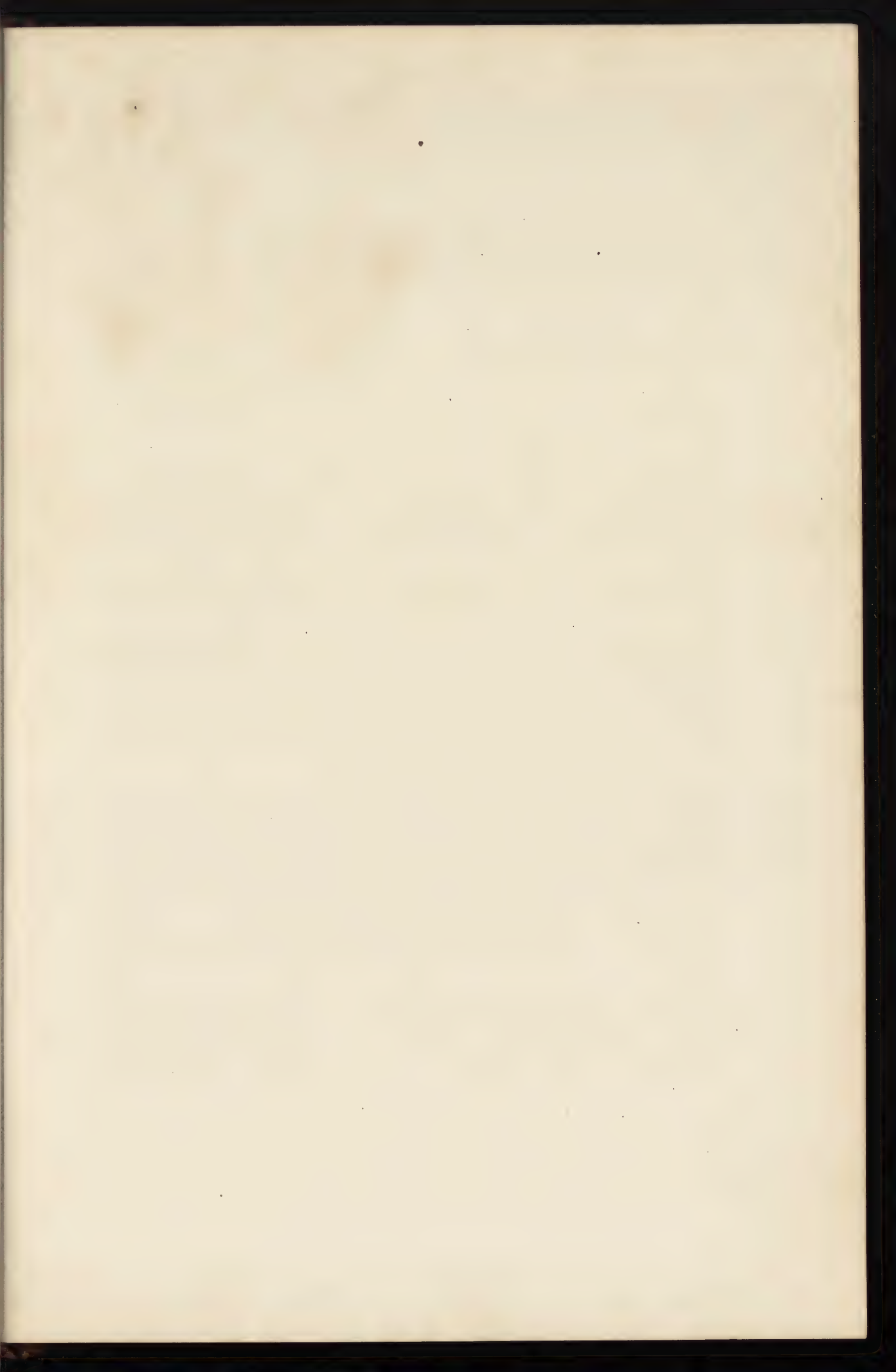




FIG. I. INTERIOR OF SAN VITALE, AT RAVENNA

RECORDS ^{OF} THE PAST

VOL. VIII



PART IV

BI-MONTHLY

JULY-AUGUST, 1909



KUTCHUK AYIAH SOFIA AND SAN VITALE

AS THE steamer approaches the Bosphorus from the Sea of Marmora, the minarets of Hagia Sophia and of the Achmedieh Mosque, the Seraskier Tower, and other prominent buildings attract the attention of the observer; but only the informed would be likely to notice the single minaret of the Kutchuk Ayiah Sofia, the so-called Little Hagia Sophia, below the Achmedieh, close by the railroad track which has intruded itself into the sacred precincts of Seraglio Point.

A scholarly article relative to this Little Sophia, more correctly the Church of SS. Sergius and Bacchus, appeared in the RECORDS OF THE PAST, December, 1906, in which the domical form was ably discussed by Dr. Allan Marquand,* who concluded his paper by accepting as probably most correct the drawing of Choisy, a cut of which he presented to the reader.

In February, 1907, the RECORDS OF THE PAST contained a note from Prof. Howard Crosby Butler, based on personal observation of the building. This correctly states that a series of horizontal sections would reveal varying profiles.

With a view to ascertain somewhat definitely the structural form of this church, particularly in regard to the alleged relation to that of San Vitale in Ravenna, the writer recently visited both churches and inspected carefully the internal and external structure of both. The galleries in neither building are of sufficient height to assist in

*For illustrations see RECORDS OF THE PAST, Vol. V. pp. 354-361.

rendering any hasty examination of authoritative value. It is only by passing from arch to arch, and by comparing minutely the conformation of the dome in relation to the octagon, that a judgment approaching accuracy may be formed.

The half-tone of the interior of SS. Sergius and Bacchus, taken from a recent photograph, represents accurately the present appearance of the interior; but even if it had been possible to extend upward the view so as to exhibit what is above the windows appearing in the upper part of the photograph, no clearer notion could be obtained from it, so delusive is the gradual blending of one form into the other.

The contour of the dome as it rises from the angles of the octagon is easily discernible. The angle blends upward into a concave not unlike the section of a melon. There is, however, much irregularity, as if the plastering had been unskilfully done, the curve in some cases bending uniformly and in others ascending stiffly and then inclining more sharply toward the center.

The contour of the sections over the windows is more difficult of determination, as the eye is at first misled by the form of the intervening sections. After a resolute fixing of his attention on the sections over the windows, the observer is inclined to conclude that they are cylindrical rather than spherical. It is possible that a straight-edge placed against them horizontally might show a slight concavity above the windows; but it did not so appear to the writer.

An examination of the exterior of the building confirms this conclusion, the dome possessing positive indications of the alternate flatness and concavity of the sections. There is a humping or convexity directly corresponding to the concavity within, and there are also alternating with the ridges flat sections corresponding to the barrel-vaulting within.

The description which Lethaby gives (*Medieval Art*, p. 44) is so concise as to be obscure. He says: "Each angle of the octagon being rounded into a niche, the dome springs in 16 sides." Professor Butler criticises this description, saying: "The latest description of this dome, that of Mr. Lethaby, does not appear to me to be altogether accurate. He is certainly inaccurate in saying that each angle of the octagon is rounded into a niche, since the octagon below the dome shows 8 obtuse angles, but no niches." It is possible that some light may be thrown on the matter by a consideration of the structure of the famous church in Ravenna, which possesses a form remarkably similar.

On entering the shadowy church of San Vitale the observer discovers the same illusion, the dome rising from the octagon without a cornice or any formal drum construction. The interior presents the same octagonal form with the pillars indented by the obtuse angles, which are characteristic of SS. Sergius and Bacchus.

The decorated plastering baffles the eye in the attempt to discover the precise elevation at which the octagon ceases and the dome



FIG. 2. ORIGINAL FORM OF SAN VITALE

begins. Whether from the floor or from the galleries, the search is in vain. The reveals of the windows, however, display not only the springing of the dome; but make it clearly evident that the brick arches above them are concaved to conform to the curve of the dome. From the windows upward the domical form is beyond dispute.

What of the portions of the roof above the angles of the octagon? The walls were inspected from section after section of the gallery



FIG. 3. EXTERIOR OF SAN VITALE .

without definite result. The general impression was obtained that the spherical form was begun well down in the spandrel of the supporting arches, that the angles were filled in more and more as the building rose. At length the middle opening, seen in the cut of the interior, was visited, and then the secret was out. The plaster above the opposite spandrel had fallen, and in the place of the flying angels there was bare brickwork and an arch similar in construction to those above the windows.

Cut No. 2 shows the structure of the original brickwork, demonstrating that the dome is constructed in pendative on the 16 arches, the plaster-work filling the space below the arches of the lower row and blending downward into each spandrel. The beautiful frescoes almost defeat the eye in the attempt to read the riddle; but what the most careful inspection had made probable, an accident to one of the spandrels happily revealed.

If Mr. Lethaby conceived of niches of this sort in SS. Sergius and Bacchus, hidden beneath the plaster, his description may be accurate; but otherwise it is not easily understood.

What relation has San Vitale to the Kutchuk Ayiah Sofia? It is manifest that what was attempted crudely and timidly in the latter was accomplished skilfully and admirably in the former. Whether

the architect of the Constantinople church improved on his earlier plans in the erection of San Vitale is a question to be answered otherwise than by mere comparison of structure. In any case, the resemblance, especially in the treatment of the spring of the dome from the angles of the octagon is worthy of note. The presumption that San Vitale is an improved Kutchuk Ayiah Sofia is assuredly not unnatural.

These are days when the past is emerging for us from the dim recesses of almost forgotten libraries. Shall we not hope that some manuscript of Justinian's day may yet come to light, telling of the genius who planned and executed the designs which have made the name, Byzantine, significant of majestic architecture in every language of to-day?

JAMES CARTER.

Lincoln University, Pa.



PAINTED STELÆ AT PAGASÆ.—The most important finds at Pagasæ during 1907 were the painted stelæ. Many are unbroken, and the colors are still fresh. They are believed to include works from about 500 B. C. to the beginning of the Christian era—in other words, they cover the entire period of the rise, perfection, and decline of Greek painting.

The stelæ are from 3 to 4 ft. high and 1 to 2 ft. broad; often there is a gable and a cornice at the top. The egg-and-dart design is frequent in the ornamentation. Many have inscriptions cut in the stone and then painted red. Some of the inscriptions give simply the name; others add some reflections. The pictures are similar in subject to the more familiar stelæ in bas-relief. The colors are warm and rich, dark reds and browns predominating, but violet, vermillion, blue, yellow, and green are also found. The most interesting is the so-called "Stele of the wife of Artitopos." Unfortunately, the stone is broken, but enough is left to give an idea of the scene depicted. It seems to be the deathbed scene of a young woman in childbirth. The husband sits at the foot of a couch, gazing at the face of his wife, while the nurse holds the child in her arms, hoping to distract the father's attention from his grief. The faces are painted in reddish-brown. The man's features are strong and beautiful.



GOLD AND SILVER OBJECTS FROM TEOTITLAN, MEXICO

The top figure and skull are of gold. The turtle shells are silver. The central figure is half gold and half silver. The 3 lower figures are gold, probably earrings

AZTEC RUINS IN SOUTHERN MEXICO

PART II

THE ancient pueblo of San Martin situated just across the river that runs past that village was next visited. The ruins commence with the large artificial hill that is built on the steep river bank, and extend for some distance south embracing graves, house sites, small mounds, and the large and small foundations like those of Teotitlan which are often confounded with house sites—they may be the same only perhaps represent the larger houses of mud and sticks; the natives call them *cimientos*, which means foundations. The large artificial hill here gave evidence of having been opened about 80 years ago, the entrance being at the top; other entrances seem to have been made or attempted, but these latter were made at the base of the mound and so, if my idea is correct, must be of a later date. The indications of random diggings were seen all around the mound. Some pieces of pottery were picked up that had been washed out of the hill and partly covered with earth; these were of the black clay that was generally used in Teotitlan for vases. A number of the hills in this vicinity have been entered. To the south of the main hill are the burial places, containing pottery, figures of clay and stone, like those of Teotitlan. Here, as in Teotitlan, there were squares marked off with stone slabs partly buried on edge, denoting the sites of former partly wooden, lightly built huts of the common classes; judging from the remains of these huts, they must have been very numerous; they appear to have generally one door. It is not likely that wood entered wholly into the construction of these houses, as lumber of all kinds is scarce here; it is more probable that the huts were constructed partly of wood, such as the frame, and that mud was daubed on the wooden framework in a somewhat similar manner as that in which the house of the Mexican peon is made. Old San Martin was no doubt quite a large Indian village, but was not as thickly populated and did not have the importance of Teotitlan. While at San Martin we made a trip to the small village of Los Cueces and rode over all the country around this settlement. About 6 miles south of Los Cueces we discovered what must have been a small village; a few house sites, and a number of low-lying graves were noticed lying side by side in line.

Not far from the plantation of Ayotla, on the face of a cliff, several pictures of men about 12 in. in height were found. They were not painted or outlined; but entirely depressed in the rock. It is impossible to say with certainty what they are intended to mean, but probably the most correct surmise is that they were meant for a

warning, situated as they are where an attack could be made. The figure of the man with a large ear might signify attention or danger; the club, protection. I could not attach any particular meaning to the other two rather indistinct figures; they may have some connection with the first. Other petroglyphs near San Martin were two outlined figures of the Sun. The radiating lines are very irregular, and have many scratches on their sides, clearly caused by the instrument slipping and making but faint scratches, and therefore not intentional, though it might be thought that they were intended to better represent the radiating lines of the Sun. The lines are deep in proportion to width; some of them are faint but still distinguishable, and apparently made with a sharp thin tool. Weathering has caused the discoloration of the lines from white, the natural color of the soft rock, to a slightly dark color. The first Sun is approximately 16 in. in diameter; the other is about $\frac{1}{4}$ its size. On the roof of the cave about 6 ft. from the Sun figures a white hand and two blood-red hands were painted, similar to the blood-red hands so common in Yucatan, as Stephens tells us. In the vicinity of Teotitlan, on the bank of the canal that leads the water into the town, a number of cup sculptures were seen; they, however, occur singly. Groups of sculptures were not seen anywhere in the northern part of the state of Oaxaca.

The natural caves to the east and west of San Martin, near Ayotla, and near the hill called Las Tres Torres, show signs of having been occupied. The caves near San Martin have divisional walls of rock, partly cemented, and in the floor of the caves fragments of glazed pottery made by wheel were found. Furthermore conclusive proofs that the caves were occupied in recent times were discovered in the shape of nails driven into the walls and an iron ring stuck in a near-by rock. The supposition is that these almost inaccessible cliff-caves were occupied by robbers in recent times. Besides this late occupation they could have also been occupied by the Aztecs but no indications that would lead to such a conclusion or supposition were seen. As to the authorship of the figures of the Sun, notwithstanding the discoloration of the lines, they were made during the last 80 years and perhaps later—possibly by the robbers who are said to have inhabited these caves. The hands painted on the roof of the cave might be attributed to the Indians; the 3 figures of the men might also be credited to them.

In several places along the Rio Salado, near artificial mounds, fragments of metates were found that were of the usual metate material, and similar to those now used by the Mexicans; these remains of metates and metlapilles (tapering rubbers 15 in. long, $2\frac{1}{2}$ in. in diameter¹) are scarce considering their former extensive use. A few celts were found; some of them were of slate, taken, no doubt,

¹See Prof. Frederick Starr's *Notes on the Ethnography of Southern Mexico*, p. 2. The metlapilli is the "child of the metate."

from the slate outcrop near Petlanco. These relics are not nearly so plentiful as they are farther east in the Mazatec country, where their use may have been more common. There is some indication that the Aztecs occupied certain parts of the Mazatec country, for some of the pottery found there, and especially the gold and silver relics resemble their work. In relation to Mazatec pottery and relics



IMPLEMENTS AND ORNAMENTS FROM MEXICO

First row, right to left: 1, Adz from Mitla; 2, from Teotitlan; 3, Adz of "greystone" from Mazatec County; 4, Copper adz from Mazatec County; 5, Copper adz from Teotitlan. Second row: 1, Adz from Mazatec County; 2, Adz from Pueblo Vujo; 3 to 6, Adzes from Mazatec County. Third row: 1, Shell charm from Teguistepec; 2, Greenstone charm from Teguistepec; 3, Clay monkey face from Teotitlan; 4, Chipped adz from cave in Mazatec Region; 5 to 7, Punches from Teotitlan; 8, Clay thimble from Mazatec County. Fourth row: 1, Clay part of distaff, Mazatec County; 2 and 3, charms from Mitla; 4 and 5, Points from Teotitlan.

they must belong to a later period, dating with their occupancy. The mounds near the junction of the San Lucas road with the Huautla road, and in other places of the Mazatec country show signs of having been made by the Aztecs. Especially foreign to the Mazatec country is the large slab of stone that covers the entrance to some of the mounds and which is a feature of the mounds of Teotitlan and

vicinity. Besides the relics found in these graves there is other evidence that these mounds are certainly intrusive work—probably Aztec.

San Bernardino is said to have been an Aztec military post; the people to-day speak the Aztec or Mexican, but not the pure language, this is probably due to the influence of the surrounding tribes.

Some of the pottery of Teotitlan is of fine clay, of very superior workmanship, and painted with figures and signs in the inside and outside; this is especially noticeable in the fine red bowls where the hieroglyphs, if so they may be called, are not purely decorative, but have some meaning, the same signs occurring on several bowls and dishes examined. The vessels, or vases are of the olla form, generally about 2 ft. high and are made of the black clay; a few dishes were made of this black burnt clay. The incense bowls are of a yellow clay. Vases or urns of natural and graceful form were unearthed near Teotitlan and in several places in its vicinity, their average size being from 18 in. to 2 ft; a sort of cement covered them making the urns appear white when the natural color was black; this cement was easily scraped or washed off; the pattern generally adhered to was the olla-shaped vessels of to-day; while some variations were seen, nearly all had round bottoms, were without ears and otherwise resembled ollas.

A singularly large and beautiful urn was taken from one of the rooms of El Fuerte; owing to the carelessness of the diggers in not removing the ashes and earth it contained (the ashes were probably the remains of some Cacique) it fell to pieces on coming in contact with the air; this was also the case with several almost perfect skeletons.

Incense bowls are rare; but while it is difficult to secure them entire, the mounds and artificial hills are covered with pieces of them; the broken legs, which generally terminate in an iguana head or snake head are scattered all over the large artificial hill and the mounds. By far the finest examples of pottery found anywhere in or near Teotitlan were the delicate plates that came from La Iglesia; they were covered with thick red paint, with figures and signs painted in black, decorating the inside and outside, and were the same as those found near El Fuerte; this pottery is the best burnt, strongest, and by far the finest seen anywhere in the entire region explored.

What especially attracted our attention at Petlanco was the large number of broken pottery pieces that were scattered all over the hills; these fragments were also seen on many level places where, however, they were not originally placed but had been washed by floods. One particular spot had a collection of broken idols of various sizes; judging from the legs and arms some of them must have been about 3 ft. high and similar to those of Teotitlan. This spot seems to have been selected as the place where only the idols were to be broken; near here a stone idol was found, it was also broken. According to

information gathered, it seems to have been the custom among these Indians to break up their idols once every year when the moon was in a certain phase, and in this ceremony they must have also included all their dishes, as it is the only way to account for the broken fragments of pottery scattered on any mound or near any sign of former habitation. Farther in the interior some of the old Indians said that they broke up all their old idols long ago by order of the priests. Such was the tradition of these people in the Mixteca. But how did it account for the broken pottery? It is possible that this custom may have originated with the priests' endeavor to put down idolatry.

Besides the iguana head and snake head that decorate the end of the legs of the incense bowls, the monkey face was also placed on ollas, perhaps for decorative purposes. It is evident that the monkey face was principally used on the black ollas of the larger size.

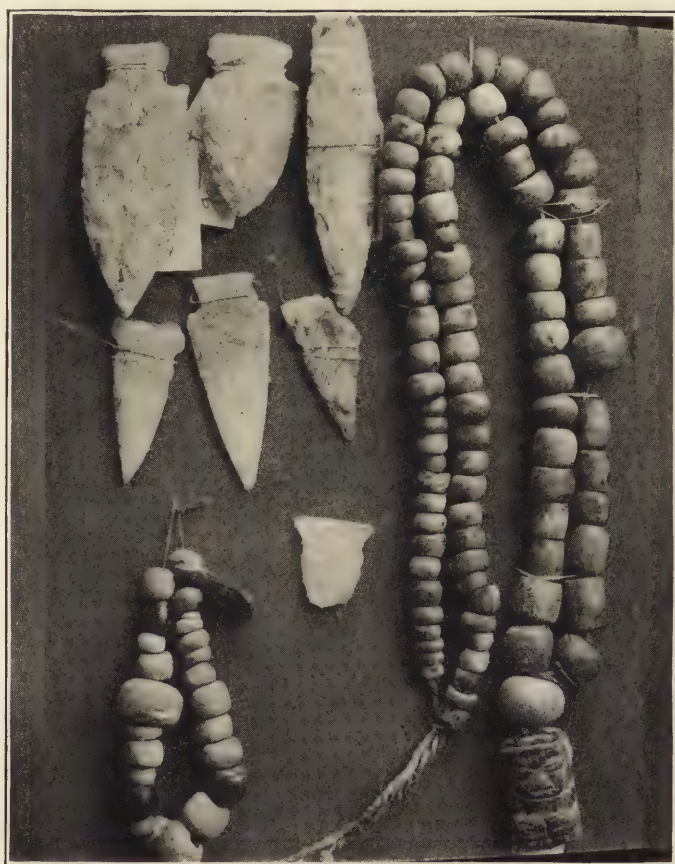
A few fragments of clay calendars were found on the hills near Teotitlan; judging from some exceptionally large pieces examined it seems that these and those farther south resemble, though not exactly, the Aztec calendar. The Teotitlan calendars have very prominent divisions, standing out nearly a quarter of an inch; they are round and range in size from the smallest, which are about 6 in. in diameter to the larger ones which are about 12 in. The divisions seem to differ from the calendars found farther south. (See Seller which I have read since writing this.) It was noticed that the usual circles were employed, but the characters were very indistinct from wear, so no safe conclusions can be drawn.

Near Teotitlan some large clay idols were unearthed; they were about 3 ft. high; in the usual sitting position with legs up; and with a crown or sort of crest rising from the head. They are to be found in many parts of the valley near San Martin. Several such idols were seen, some slightly different in their decoration and painting, and some being without any trace of paint, but all having the crest and 3 or 4 little circles at the front of the crown. The crest feature was also noticed on some of the stone idols of this vicinity. A perfect specimen was seen near La Iglesia; it had been uncovered by a recent washout. By its side was another idol, the only one of its kind seen; its head was entire, but the lower part of the body had been broken off; not having a photograph of this unusual head I am unable to discuss its features and decorations. Smaller clay idols are occasionally met with and stone idols of the usual type are common.

A gold idol mask found in the El Fuerte of Teotitlan is of soft gold, about 1 in. high, and of delicate workmanship. It is composed of two metals—gold and silver, one-half the face (I believe the left side) being of gold, the other half of silver; the parts do not appear to be soldered together, so closely and perfectly are they joined; the whole work is cleverly done, no trace of tools being visible. The figure must have been first cast and afterward polished. The crown is especially interesting, as it is very high, and the details of the deco-

rations are distinct; the sides of the face seem to be covered with a mantle ornamented with designs. Its face has a long, crooked nose, is absolutely expressionless, and on the whole rather resembles an Egyptian figure. It is a mere shell; indeed, all the figures whether of gold, silver or clay are hollow.

In the same apartment that contained the grave of the Cacique, mentioned at the beginning of Part I, the above figure and a number of others were found, having been placed in a vase, which contained a



OBJECTS FROM TEOTITLAN

number of hollow gold skulls, representing death masks, about $\frac{1}{2}$ in. high—also cast figures as the rough edges on the inside and back plainly indicate. The inside is black and shows other signs that favor this conclusion. Evidently the figure was cast before it was polished over; a hieroglyphic sign adorns each side of the head near the ear. This vase also contained several thin sheets of gold, each having two holes at its upper end, which suggests their being pendant ornaments such as earrings, and the 3 lower figures in the illustration on page 184, which are plainly earrings. With these there were also some silver

turtles with rattles in them; a pair of gold pinchers; a perfect copper needle; several copper adzes or celts, one of which is herewith reproduced.

All come from El Fuerte with the exception of the needle, which is from a level foundation *cimiento* or house site. These few figures I was fortunate enough to see, but a great many others had been melted into gold rings and other ornaments.

A number of silver and other metallic figures were found in the Mazatec country, which adjoins the region of Teotitlan and pertains to the same district. These figures are, I suppose, Aztec. The Mazatec country is not a mining district, no ore-bearing rocks being found in any section, with the possible exception of Mazatlan, which is near Teotitlan. Teotitlan is a mining country, some of the quartz outcrops along the river bank of the Teotitlan River showing, by analysis of numerous specimens, some lead, silver and slight indications of gold; and the mounds in which these gold figures were found resemble in every respect the stone-roofed mounds of the Teotitlan regions. It is, therefore, to be presumed that these metallic objects of the Mazatec regions are of Aztec origin, if such a connection is not well established, the burden of proof would, at least, rest on any assertion to the contrary.

Numerous excavations have been made from time to time, within the last 70 years by persons seeking buried money that was supposed to be hidden during the late revolutionary times. These excavations occur everywhere and are occasionally met with near an artificial hill, with which, however, they have no connection, and must not be confounded. Such excavations can be seen to the south of Teotitlan.

New Iberia, La.

LOUIS M. N. FORSYTH.



PROFESSOR SAYCE AT MEROE.—On March 23 the *Daily Graphic* [London] published the following extract from a letter from Professor Sayce concerning his discoveries at the site of the city of Meroë: "At Gebel Baikal I excavated a little temple of Tahahka, previously unknown. The remains of the great Temple of Amon at Meroë are magnificent; fancy an enceinte wall of cut-and-dressed stone 22 ft. wide. It was approached from the east by an avenue of stone rams. We sent to Khartum the life-size statue of a king I found in the temple site, also an important Greek inscription of a King of Axum, to whom the overthrow of the Ethiopian kings seems to have been due. The mounds of Meroë are as extensive as those of Memphis, and are covered with the same pottery as that discovered by McIver at Ibrum. At Messaurat en Naga I further found the rock tomb of King Sengawâtoh, 'priest of Thoth,' and to my great joy the key to, at any rate, a partial decipherment of the Ethiopian hieroglyphs."

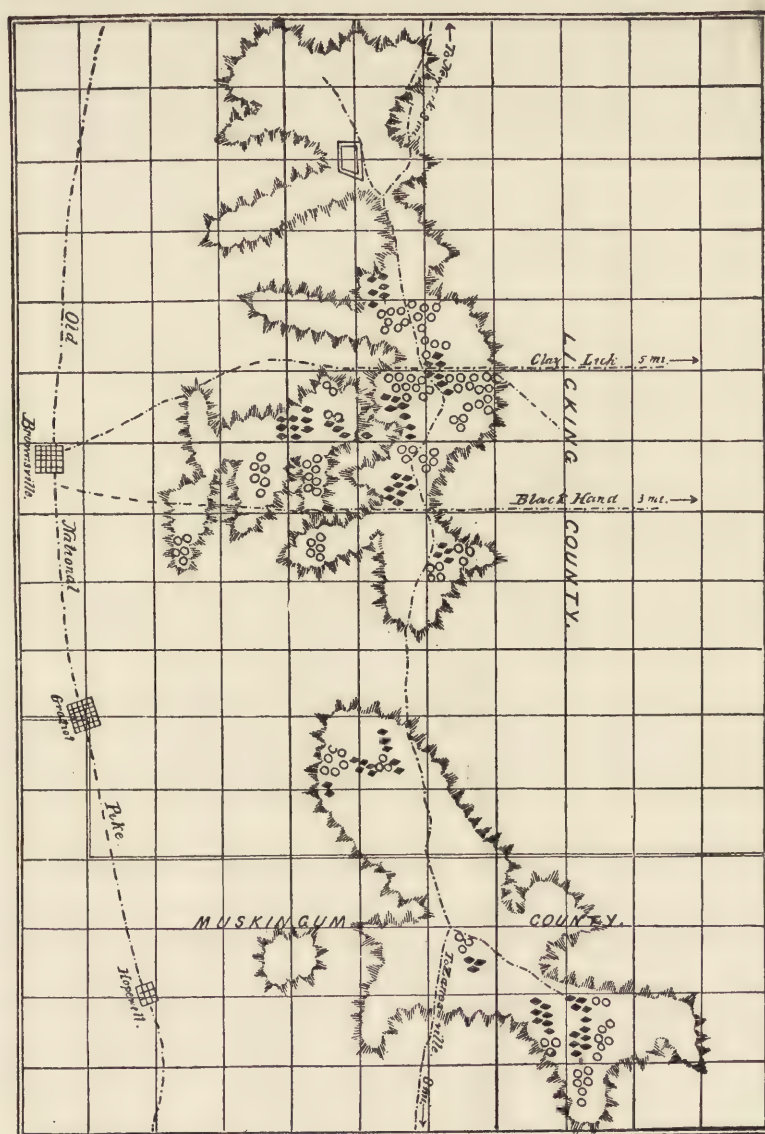
THE GREAT INDIAN QUARRY OF OHIO

FLINT RIDGE in Ohio is the source from which has come the larger part of the material from which the Indians of the Ohio Valley manufactured their arrowheads and spearheads. Altogether it is one of the most interesting and instructive relics of the aborigines that is anywhere to be found. The Ridge is situated near the center of the state, about half way between Newark and Zanesville. It consists of a mass of variegated flint of subcarboniferous age, about 10 miles long and 1 mile wide, from which the softer strata on either side have been worn away by the slow process of sub-aerial erosion to a depth of 200 or 300 ft. But the general height is that of the original plain which has been dissected by the streams. This level is not far from 1,000 ft. above the sea.

Naturally such a deposit of flint does not furnish fertile soil, so that it is still uncultivated. But it has always supported a dense forest of trees, and now is thickly covered with second-growth timber and underbrush, making its exploration difficult. In fact, it has never been thoroughly explored. No excavations of any amount have been made in the pits from which the Indians removed their precious treasures of flint; or in the piles of debris that surround them. Important results are expected from the exploration which the State Archaeological Society plans to make in the near future.

The superficial facts, however, are startling in themselves, for this whole area of several square miles is completely honeycombed with pits dug down from the surface to a depth of from a few feet to 20 ft. There are literally tens of thousands of these depressions with their surrounding rims of useless debris thrown out about them. What little investigation has been made in these piles makes it clear that no manufacturing of implements was carried on there. The workable material was taken away to be made into the finished product elsewhere.

The extent of the work carried on is the most surprising thing about the place. Many centuries, or perhaps thousands of years, would probably be required to exhaust the field as thoroughly as it was done. Not that the flint was all exhausted, for that is not the case. So much remains that a railroad company has thought of purchasing the area to crush the material for ballast. But the Indian was limited in his means of quarrying and could not penetrate to a great depth. It will be interesting to learn what his quarrying tools really were.



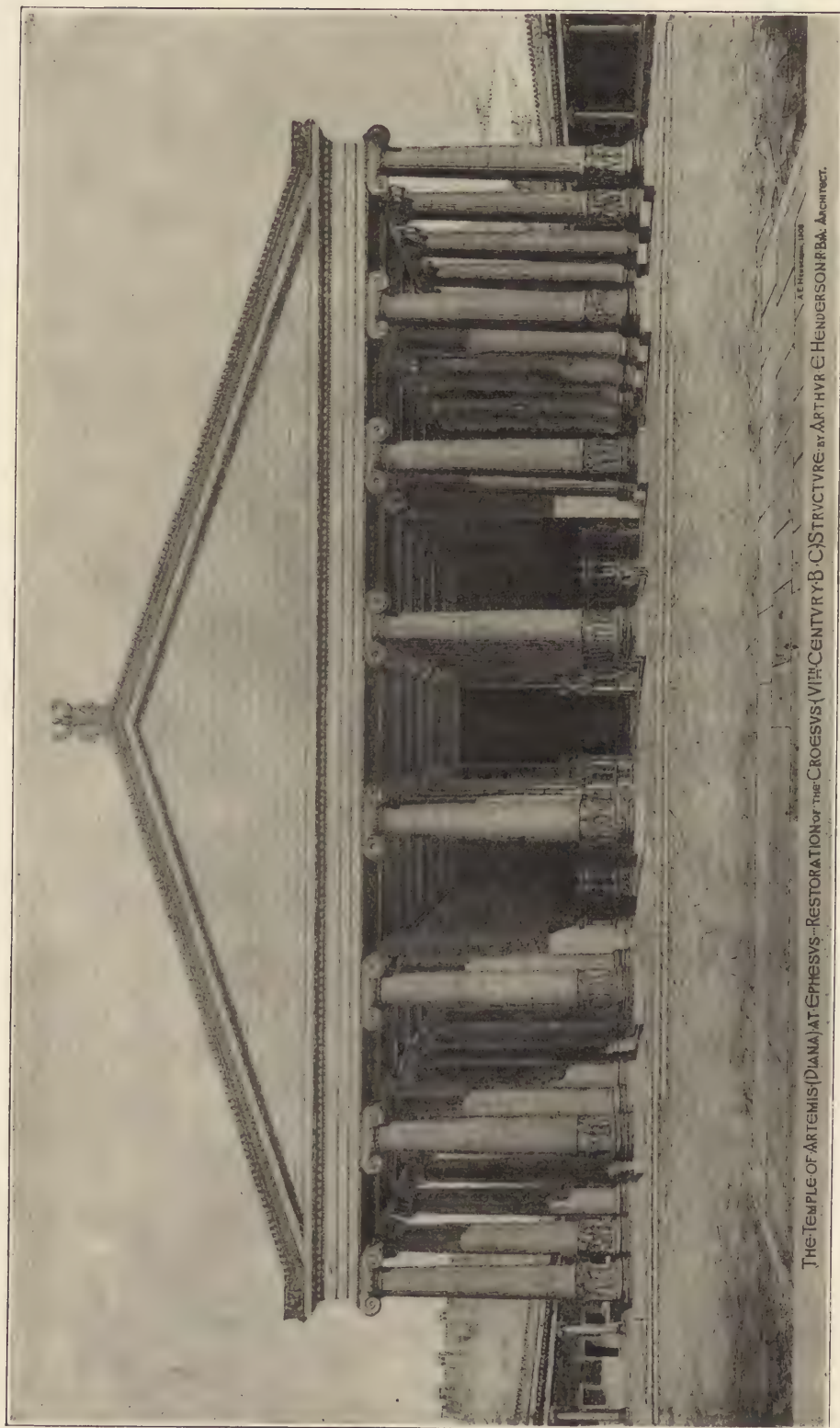
FLINT RIDGE, LICKING COUNTY, OHIO

From Fowke's *Archæological History of Ohio*

It will be interesting, also, to learn how widely this variety of flint was distributed by trade. Since we have found implements of obsidian from the Rocky Mountains and ornaments of mica from North Carolina in the mounds of Ohio, it is to be expected that some of these flints of the more attractive colors may have found their way to the most distant parts of the continent. The activity and enterprise of the Indian tribes have not been fully appreciated; especially in the light of their limited means of work and travel.

Oberlin, Ohio.

G. FREDERICK WRIGHT.



THE TEMPLE OF ARTEMIS (DIANA) AT EPHESUS - RESTORATION OF THE CROESUS (VITH CENTURY B.C.) STRUCTURE BY ARTHUR CHENDERSON RIBA, ARCHTCT.
A.C.H. 1908

FIGURE I

THE CROESUS (VIth CENTURY B. C.) TEMPLE OF ARTEMIS (DIANA) AT EPHEBUS*

IT IS my purpose in this paper to describe the actual remains found and the fragments remaining of the Croesus VI century B. C. Temple of Artemis at Ephesus, which were uncovered and surveyed during the British excavations at Ephesus, directed by Mr. D. G. Hogarth, in the autumn of 1904 and the spring of 1905, and to place before the meeting a suggested restoration.

Before I commenced the survey the late Doctor Murray, and after his death Dr. Cecil Smith, desired me to measure and examine carefully every marble fragment of the Croesus temple left in position, and this I believe has been carefully done, besides making full-size details of the architecture found. The Croesus pavement is about 6 meters (19 ft. 8 in.) below the general level of the fields. It is well shown in figure 2, taken before the primitive structures were uncovered, and looking in a southwesterly direction (the large pile of stones is a northeast column base, and the hut marks the situation of the southwest anta).

The excavations included two campaigns, viz., in the autumn of 1904 and the spring of 1905. Before the commencement of the spring campaign the excavations were flooded, so that they seemed almost in a hopeless state; but, by the aid of a powerful 12-in. centrifugal steam pump, belonging to the Aidin Railway Company, and by the supplementary use of a 3-in. hand pump, the water was kept sufficiently under control, but not without a liberal amount of hand bailing, which was always resorted to where explorations below the pavement level were taking place.

The Hellenistic first step and drain beneath the courtyard paving were traced for considerable distances on the north and east. They were found also on the south, but not at the west. Huge masses of Hellenistic piers to support the steps were also uncovered; these at their inner ends rested on the Croesus pavement, and at their outer united with a continuous foundation extending to the drain mentioned above.

The pockets between these piers were the only portions of the Temple area not covered by a continuous foundation. These were filled with débris from the Croesus temple. Other Hellenistic foundations were two masses for the peristyle columns, an inner and an outer; also foundations lined the south side of the Croesus south cella wall,

*This paper was read by the author at a General Meeting of the Institute of British Architects and later published in the *Journal of the Royal Institute of British Architects* under date of Dec. 5, 1908. We republish this article in part, with the permission of the Director of the British Museum.

and large masses stood within the cella, greatly impeding the work of exploration. Nothing was found belonging to the Croesus temple beyond the inner faces of the Hellenistic foundation piers.

The remains which are still in position consist of almost the whole of the foundations, and patches of marble pavement. The steps and the foundations had been entirely cut away by the Hellenistic builders, excepting a small portion of foundation to the west of the perron, and the plinths of three columns, one of which has the lowest base still in position. Parts of the west and south walls with the southwest anta still remain, and also the eastern marble quoins to the central basis. Besides these, in the foundations of the cella were discovered what appeared to be a foundation for an inner colonnade.

Large continuous masses of concrete (which Wood considered to be the foundations of a Byzantine church) composed of fragments of the Croesus, the Hellenistic temples, and Roman bricks, just within the cella wall on all sides, extending both below and above the level of the Croesus pavement, added greatly to the difficulty of the exploration of the cella, more especially so as explosives could not be used. One such mass, however, was useful, because molded upon its surface was the inner face of the southeast angle of the cella wall, thus definitely giving the extent of the cella. This shows that the foundations of the Croesus temple were laid bare as early as late Roman or Byzantine times.

THE PRIMITIVE STRUCTURES

On removing portions of this concrete, and of the Hellenistic and Croesus foundations, remains of three primitive structures were disclosed.

The earliest structure, Temple A, was represented by a small central basis built of squared green schist (figure 3); the blocks were bedded upon one another and used as facing to a solid yellow limestone interior. It was among these small stones that the majority of the electrum treasure was found, and just outside the northern third of the western face the greater part of the ivory objects were discovered, now exhibited in the British Museum and the Imperial Ottoman Museum, Constantinople. The lowest courses of the foundations extended to about 1 meter 80 centimeters (5 ft. 11 in.) below the level of the Croesus pavement. Projecting westward from the basis and bonded into its foundations is a small T-shaped platform; joined to it further westward is another platform about the same size as the basis, both of yellow limestone.

The middle period, Temple B, entirely of yellow limestone, surrounds Temple A and thickens the basis to the east, north, and south. This structure had an outer wall on all four sides, but this has been greatly demolished by the laying of the Croesus foundations.

The last of these primitive structures, Temple C, again enclosed the basis and extended further westward. This also has an outer wall of much greater extent than that of the middle period. The inner



FIG. 2. EXCAVATIONS FROM THE NORTHEAST BEFORE THE PRIMITIVE STRUCTURES WERE UNCOVERED

Courtesy of British Museum

enclosing wall was ashlar-faced, only the first course remaining in places—and it was built upon large slabs extending the full width of the wall, and below these rough foundations.

The northern and southern walls generally measured 1 meter 93 centimeters (6 ft. 4 in.) in thickness, and the western was slightly thicker, viz., 2 meters 1 centimeter (6 ft. 7 in.). The lateral walls extended westward further than did the western wall, and give the appearance of a temple *in antis*. This feature could not be traced at the eastern end, although the eastern cross-wall was in position and in perfect preservation at the northeast inner, but broken away at the outer, angle. Another small foundation of this structure was discovered just within the foundations of the eastern cella wall of the Croesus temple.

It was extremely difficult to apportion all these different foundations and wallings on account of their fragmentary condition and the nature of the soil, for when the heavy masses of Croesus foundations were removed water would instantly spring; and although the pumping was sufficient for general purposes, the examination and measuring were most difficult and arduous, having to be done groping in slime, with the water running out from every crevasse, bubbling up from the virgin sand below, and men incessantly bailing.

THE CROESUS TEMPLE (D)—GENERAL

In the course of the VI century B. C. the Ephesians determined to replace the small Artemision then existing by a new temple of much greater dimensions and splendor, by the architects Demetrius and Paeonius—with a platform considerably over four times the area of the old building. As a comparison, one may imagine the replacing of a Saxon edifice by a Norman cathedral.

The last primitive structure, Temple C, the architects of which were probably Chersiphron and Metagenes, I suggest, was used while the Croesus temple structure was being built around it, and was only destroyed when the work was well in hand to make way for the construction of the cella. To support this theory we found a conduit, 60 by 30 centimeters (2 ft. by 1 ft.) in width and height, passing through the center of the western cella wall a little more than a meter (3 ft. 3½ in.) below the pavement at the western portal. On the inner side it started clear of the western wall foundations, close to the western wall of the C structure. A little lower than its floor level and to the west it was traced beneath the foundations of the pronaos for a considerable distance westward. The primitive "Basis" was still used as the central point, but the axial direction was slightly readjusted to 11° 35' north of west and south of east, and was doubtless as near the true west-east direction as the architect could attain. Perhaps it was axial with the general direction of approach by sea or fixed by an astronomical observation.

The general dimensions of the remains *in situ* are: The length from east to west of the marble pavement remaining, 108 meters 83 centimeters (*circ.* 330 ft.); the total length from east to west, including the western perron (the platform at the western end), 117 meters 48 centimeters (384 ft.) the width from north to south, 55 meters 10 centimeters (180 ft.); the area covered, including the perron, approximately was about 6,211 square meters. I shall give the reconstructed dimensions later.

FOUNDATIONS

Over all this area, wherever the foundations were removed, was found a bedding of white clay from 10 to 20 centimeters (4 to 8 in.) in thickness, and below this virgin river sand; but where older foundations occurred gravel had been laid on the clay bed to fill up holes, and the clay then spread to take the new foundations, all of which were of blue limestone quarried from Mount Prion hard by, with the exception of a few discarded marble paving-blocks.

The wall foundations were constructed before the other foundations; they spread out with footings to a depth of about 1½ meters (5 ft.) beneath the pavement floor. The cella wall was considerably larger (the north and south walls projected to embrace a pronaos of large extent and a posticum), and entirely enclosed the outer wall of

Temple C. The south cella wall measures 1 meter 92 centimeters (6 ft. 4 in.), and its lowest course of footing 5 meters 20 centimeters (17 ft. 1 in.) in diameter. These walls had 5 courses of foundations and were composed of fairly large stones, but with two thicknesses occasionally of small stones used as a course.

The foundation of the remainder of the structure was formed of 3 continuous layers of large stones to a depth of about a meter and a quarter (4 ft. 2 in.) below the pavement. A fragment of the foundation for the steps was found at the western end of the perron; the lowest bed was continued to carry the pavement of the courtyard.

There was a straight joint in the foundations within the cella, about 5 meters 97 centimeters (19 ft. 7 in.) distant north and south from the cella walls, and a little eastward of the basis, which had a facing inwards, and was composed of small coursed stones, about 60 to 70 centimeters (2 ft. to 2 ft. 4 in.) in thickness, and bonded into the large foundations at the rear. This probably supported an inner colonnade, or possibly it was a temporary facing to the foundations, allowing the central portion to be filled in later—shown in figure 4; it was built upon the lowest courses of Temple B, and the walling shown low down and parallel to the facing is a fragment of Temple C.

The central basis was free from the paving foundations—it rose to a sufficient height and doubtless was considered substantial enough to carry the cult statue.

Figure 5 is taken from the northeast and shows the marble quoins, yellow limestone courses between, and one stone of the topmost of the three foundation courses abutting against it to the north. No marble quoins were discovered at the western end, as the walling had been much disturbed, but Hellenistic foundation blocks were found placed upon it.

PAVING

The topmost course of foundations was very level on its upper surface, facilitating the laying of the marble floor, which naturally varied in thickness, averaging 20 centimeters (8 in.) in thickness, rough on the underside and three-fourths up the sides—the upper one-fourth worked to a true and even surface to fit its neighbor—the top surface was worked smooth. The slabs are of various shapes, having been cut, not to a pattern, but to the form which in each particular case entailed the least waste of material. Hardly any are even approximately square, though many have but one corner cut away. The majority of those which survived were of keystone shape. The polygonal slabs were, in most cases, the smaller, used for filling interstices, and even-shaped slabs occurred, with the inner angle filled with a small block.

Where columns were destined to stand, larger paving slabs than those ordinarily used were laid down. To this use of larger and therefore better slabs under the base plinths is due the fact that in all

but 4 cases the pavement which supported columns has been removed wholly by later builders, while much of the outer column slabs has been left in position. The position of the columns can be roughly distinguished by their gaps. No special foundations were put in under the columns, the usual 3 layers of foundation blocks being considered sufficient to support the weight. As will be noticed later, however, these have not always fulfilled the expectation. The pavement ran under all walls, the slabs being usually laid lengthwise, under the line of wall; but even there the arrangement was not very symmetrical, no effort being made to secure uniformity of dimension or parallelism of sides.

All the pavement surface would appear to have been left rough in the first place until the superstructures had been bedded upon it; then the exposed portions were leveled and worked to a smooth face. In certain places the faint dividing line between the rough and smooth indicates the position of a vanished superstructure. Three small T-shaped incisions occur in the pronaos pavement, nearly on a line with the third rank of columns from the western end—these were obviously sockets for marble or metal uprights.

From the levels taken of the surviving patches of pavement, it appears that the whole floor of the peristyle sloped slightly from the cella walls outward to the edges of the platform, and increasing to the extreme angles; but owing to the numerous settlements of the platform, caused first by the weight of the Croesus superstructure, and afterward by that of the increased height and weight of the Hellenistic temple, the original gradients can only be approximately correct. The slope from the cella wall to the outside edge of the platform works out to 15 centimeters (6 in.), with a further fall of 30 centimeters (1 ft.) at the 4 angles.

THE WALLS

The north wall has been entirely removed, but its inner line can be traced on certain surviving slabs of pavement.

The east wall has also perished, but its position is defined by a mass of concrete at the southeast angle, and a portion of its western foundations were uncovered in the axis of the temple.

The eastern extension walls and antæ have entirely disappeared, together with the majority of their foundations.

The south wall has left more traces, and a short length of it actually survives in position.

At a point about 35 meters (115 ft.) from the southeast angle is a portion of the plinth and 3 courses of the wall. Byzantine concrete abutted on the inner face, cementing it in position, and Hellenistic foundation blocks of blue limestone abutted against the outward face. Thus the whole width of the plinth course survived, and the facing blocks of the course above with a portion of the inside filling. The



FIG. 4. FRAGMENT OF INNER ENCLOSURE ON S. W. (UNDER MAN'S FEET)
SOUTH WALL IN THE BACKGROUND

Courtesy of British Museum



FIG. 3. CENTRAL BASIS FROM THE WEST. HALF EXCAVATED

Courtesy of British Museum

thickness of the wall was 1 meter 93 centimeters (6 ft. 4 in.), and the plinth 1 meter 98 centimeters (6 ft. 6 in.). The prolongation of the walls to the west of the western cross wall survives at the southwest anta, namely, that of the plinth course and one block of walling only. Hellenistic foundations encase this on 3 sides, and rise to a height of about 1 meter 92 centimeters (6 ft. 4 in.). A fragment of the west wall of the cella survives, between the western portal and the north wall. The southeastern corner marks the return for the doorway. Only the plinth course and one block of the superstructure remains.

The thickness of this wall is 2 meters 1 centimeter (6 ft. 7 $\frac{1}{4}$ in.), of the plinth 8 centimeters (3 in.). This excess in the thickness to the west of the lateral walls carries on the tradition of the preceding Temple C.

Presumably the reason for strengthening the west wall is to be found in the fact that it was interrupted by the great door, or that it rose higher and supported the main weight of the roof. It is, however, curious that, nevertheless, its lowest foundations are not so broad as those of the south wall. This portion of walling had settled very considerably, especially at its northern end—the gradient being as much as 15 centimeters (9 in.) in a length of 4 $\frac{1}{2}$ meters (14 ft. 9 in.).

REMAINS OF COLONNADE

Four portions of the colonnade of the peristyle remain—two inner and two outer. Of the inner row the plinth and lower base remain *in situ* of the fifth column from the eastern end of the northern rank. This is encased by foundations—mostly of marble, from the Croesus temple—of the Hellenistic temple, which carry the paving, plinth, and lower base of a Hellenistic column. A large fragment of corona and a small fragment of a capital were among the foundation blocks.

The third plinth of the inner rank in the south peristyle from the west end still survives, badly cut about and surrounded by Hellenistic foundations; the plinth is in two pieces, which were joined by doveled mortices.

Of the outer row only a half plinth of the third column, on the south side, from the west end remains. Presumably Croesus remains of the eleventh outer column of the south peristyle from the west end would be found if the Hellenistic foundations surrounding it were to be removed. It was upon this Hellenistic foundation that Wood found the fine base now in the British Museum. I found that the Croesus pavement upon which this foundation stands was very considerably out of level. The Hellenistic builders started to correct this, and even at the present time the top courses of this foundation were perfectly level, thus conclusively showing that the Croesus temple settled before the Hellenistic structure was superimposed.

MARBLE AND COLORING

The marble used was quarried near Kos Bunar, about 7 miles (from the site) up the Cayster Valley, and is of a highly crystalline variety, white in color generally, but here and there slightly tinged with blue patches and veins. Where salts have affected inferior blocks the surface has disintegrated to the consistency of crystalline sand, and crumbles at a touch. The surfaces of the blocks which were not used for walling were brought to a smoothly rubbed finish, but not polished. The walling was hammer-finished and tooled at the edges, the arris often taken off. The bearing surfaces of column-drums were worked completely before being adjusted, and not ground against



FIG. 5. BASIS FROM THE N. E. MARBLE QUOIN OF CROESUS TEMPLE
IN FOREGROUND *Courtesy of British Museum*

each other when in position. These bearing surfaces retain traces of a red mastic. This coloring would not have been visible when in position; therefore it must have been applied when the masons wished to test the smoothness of the surfaces.

On other architectural fragments traces of coloring intended to be decorative can be detected. A white mastic seems to have been used in some cases as a ground, the marble being slightly absorbent. The colors applied thereon were a pure rich blue (observed on surfaces which were newly exposed and therefore damp) and more frequently a rich red. Several fragments of dart-and-leaf molding showed faded yellow and brown, which may be decayed remains of bright yellow and dark red.

ARCHITECTURAL DETAILS FOUND

BASES.—As was mentioned before, within the northeast pile of Hellenistic foundations is a circular drum-shaped base (three orders of double astragals between two filleted scotias) placed above a square plinth. The plinth is about 1 ft. in height and projected slightly from the base above. Comparing this plinth with the two others *in situ*, I have come to the conclusion that the inner rank had only a slight projection from the circular base, and the outer rank had rather more of a projection. Numerous fragments of varieties of molded torus or upper base were found, and appear to have been always bedded upon the lower base. The most common type is the parabolic torus, which is enriched by shallow, narrow flutings separated by small V-shaped grooves. Another very attractive torus has the upper part of its surface treated in a different manner from the lower. The upper is light and graceful, while the lower is massive and substantial. This effect is produced by the lower portion having convex reedings instead of flutings. Three varieties of filleted leaf-and-dart torus constitute yet another addition to the known bases.

SHAFTS.—Twenty fragments of shafts were studied and plotted; 14 were found to give 44 flutings to the circumference, 3 gave 40 flutings, and 3 gave 24 narrow and 24 wide flutings. Those giving 40 were of a comparatively narrow diameter, and I consider they belonged to the inner rank. The flutings are very shallow, and of elliptical section: they show a sharp arris and are not separated by fillets. Besides several in the British Museum, two good fragments of the uppermost drums were studied. One example has a large astragal and the other a small one, both enriched by pearl and double reel. The apophyges in all cases were different in curvature, and the necking from which the enriched astragal springs is, in some cases, perpendicular, but more often battering outward or cut inward.

CAPITALS.—Several varieties of abacus were found, always enriched either by a filleted leaf and dart or egg and dart. There were at least 3 distinct varieties of leaf and dart. The leaf in every case is divided into two halves by an arris, and each side is concave in section and very similar to the torus bases. The fillet binding the leaf is generally shield shape, sometimes curving outward and sometimes inward. In two fragments the leaf and dart both run down and die into the horizontal astragal above the saddle uniting the volutes. The egg-and-dart designs also vary. The egg portion really is not of that shape. These eggs are bounded by astragals which abut one against another for about two-thirds of their depth. The astragals afterward form a loop supporting the egg. The top of the egg is cut off flat, shortly after it begins to recede inward.

A fine fragment of echinus was found embedded in one of the pockets between the Hellenistic piers on the south side. It is broken off right through the center line, and it shows 3 complete eggs to the



FIG. 6. GENERAL VIEW FROM S. W., SHOWING BYZANTINE CASTLE, RUINS OF CATHEDRAL OF ST. JOHN ON THE HILL, AND MOSQUE OF ISA BEY

Courtesy of British Museum

left hand, the third egg being partly covered by the palmette springing from the junction of the roll of the volute, and the roll uniting the two volutes immediately above the echinus.

The astragals of the pulvinars, however, do not always spring from the echinus, but loop round one toward another, and small darts spring from the diverging point. When the fragments of the volutes were put together it was found that a true unwinding proportional spiral, easily set out, was the result.

ENTABLATURE.—Nothing that could have rested directly on the capitals, such as even a fragment of architrave, was found, but 3 fragments of continuous egg-and-dart pattern were studied, which look very much like bed-molds of a cornice. One was built into a Turkish tomb near the temple site. One of a large size in the Museum might possibly have been run round the cella wall.

A large block of cornice corona was found built into the foundation of the northeast Hellenistic column foundation. The hollowing out of the soffit was continuous. Another small fragment was found, as far as it went, to correspond with the large fragment. I took a paper mold of the bed-mold built into the mosque tomb, and a casting has been made from this and also a replica in plaster of the corona. These have now been cast and placed in juxtaposition. Portions of the sculptured cymatium gutter came to light, and several fragments of lion-headed gargoyles. Both the face of the corona and the cyma-

tium gutter had a batter forward. A portion of what might be the tympanum (unsculptured) gave the angle of the pediment.

Roof.—The terra-cotta fragments of tiles found on the site came from two distinct strata. Those found in the pockets of the Hellenistic piers were of the Croesus periods. No one completed length or width came to light, but only small fragments; these comprised top and bottom corners and sides, besides portions of the cover tiles. This pattern of tiling is evidently suited to a low-pitched roof, and it would bear comparison with many of the "one-thickness" tile designs of the present time. The marble parapet must have protected the lower part of the roof from the sudden storms which sweep down from the mountains in the locality.

Such was the material found for the study of the structure commenced about 550 B. C., dedicated 430 B. C., and destroyed by fire in 356 B. C.

The cymatium gutter has already been mentioned. This sculptured parapet is the feature of the entablature—it protected the roof from storms, and gave protection to those who of necessity had to repair the tiling. In the restoration the lion-headed gargoyles have been so distributed as to throw the rain-water just clear of the columns, and allow sufficient distance between their outflows for access to the peristyle. If this parapet were continued raking up the pediment it would have been extremely unsightly from the rear and, moreover, would have no reason for its existence. I have therefore made it return at the angles for a short distance until the roof behind rises to its level; thereafter it rises as the cymatium to the tympanum cornice. I have inferred the angle of the pediment from a small fragment of marble which might be tympanum facing.

The roof of the temple is shown with tiling, inferred from the portions found, and I suggest that timber was used for all construction above the corona member. The cella walls may have continued upward to support the roof timbers.

Not having any actual evidence for the height of the architrave from the pavement, I have drawn an inference from this dimension and made the height of the colonnades in proportion to their length as one to four.

In support of this somewhat low colonnade I may remark that if greater height were given, the sculptures on the cymatium gutter would not have been clearly seen. The height of the entablature is shown as one-fourth of the height of the colonnade, namely, 3 meters .07 centimeter (10 ft. 1 in.). This dimension is divided equally between the architrave and the superior members. The whole height of the temple, from the pavement to the summit of the sculpture crowning the pediment, I show as 24 meters 56 centimeters (80 ft. 7 in.), namely, half as much as the total width of the peristyle at the base of the shafts.

ARTHUR E. HENDERSON.

London, England.



WEDGWOOD VASE OF THE CAMPAGNA OR BORGHESE FORM

THE WEDGWOOD VASE*

THE Art Institute of Chicago has come into the possession of a stately Wedgwood vase, which the annexed engraving reproduces, by the generosity of Mr. James Viles, of Lake Forest, Ill. The vase is of the famous porcelainous body to which Josiah Wedgwood, its inventor, gave the name of jasper. The great English potter was engaged with this improvement upon the ordinary white biscuit from 1770 on, and was able to employ it for the grounds of his white appliques, or cameo designs, in four varieties: body-stain, water-colored, enamel-colored, and dipped. The colorings of jasper ware are blue in several shades, lilac, pink, yellow, sage and olive green, and black. The present example is of the dipped black jasper, adorned with white bas-reliefs, its height being 20 in.

□

*Notes on a Wedgwood Vase presented to the Art Institute of Chicago by James Viles, Esq.

The new material possessed three faculties of great value. Parts made separate adhered firmly to one another; the vitrified carbonate and sulphate of baryta compound absorbed metallic oxide colors readily, as no other hard pastes will; finally, the jasper body could be cut and tooled on the lapidary's wheel. The principal engraver and polisher employed at the Etruria works to finish the best pieces was Robert Pollard.

Wedgwood's remarkable imitations of antique cameos are first mentioned in a trade catalogue of 1772. Their manufacture culminated about 1777, and led up to that of jasper cameo hollow-ware. In 1786, the Duke of Portland allowed the Staffordshire potter to attempt a reproduction of the famous Barberini-Portland Vase, which Sir William Hamilton had brought to England. Webber, one of Josiah Wedgwood's modelers, completed the pattern in the spring or summer of the following year, before his journey to Rome. So Rhead, in *Staffordshire Pots and Potters*; Miss Meteyard places its completion after Webber's stay in Rome; the first copy was not published until 1790. A subscription was opened for 25 copies of it at 50 guineas each, of which, indeed, only 20 were covered before its production. Josiah Wedgwood, jr., was still doing trials at the Etruria works for "Barberini black" in May, 1790, when to redip a first coat of blue and black in pure black was accepted as the best method. The first copy was exhibited at London and all over Europe in 1790. About 50 copies of the Portland amphora were eventually turned out, in ground colors to suit the taste of customers. Of this 50, Miss Meteyard locates 15. The popularity of these reproductions was, of course, largely due to the celebrity and to the presence in London of the antique cut-glass original. It is a matter of record, however, that 5 out of 6 early copies were spoiled in the making; this circumstance gives a notion of the technical difficulties encountered, and of Wedgwood's resolution to sign no inferior specimens.

Undeterred by these failures, and by the poor commercial success of the Portland vase, which was costing him over £5,000 to produce, Wedgwood multiplied his models with energy. In a letter to Lord Auckland, British Ambassador at Madrid, dated 1788, he says: "I employ several modelers constantly in Rome" (Miss Meteyard's *Life of Josiah Wedgwood*, II, p. 572). John Flaxman, whom Josiah's first partner, Bentley, had discovered in 1775, and his wife went to Rome in 1787, with advances from Mr. Wedgwood. Flaxman superintended the work of the men coincidentally employed there, Webber, Dalmazzoni, young John Wedgwood, Angelini, Cades, Devaere, Fratoddi, Hackwood, Mangiarotti, Pacetti, and others. Which of these is the copyist, or rather the adapter of the famous Borghese Vase, as that antique marble appears conformed to the exigencies of the ceramic material in the extant copies of it? Of such we can at present locate only four, a London one at the Victoria and Albert Museum; another (19½ in. high.) in the possession of

the late D. C. Marjoribanks, Esq., M. P. (compare the context to Meteyard, *Life of Josiah Wedgwood*, figure 110, where its relief decoration is misdescribed as Flaxman's Apollo and the Muses); third, number 263 in the Wedgwood Museum, height 22 in.; and fourth, the one brought to Chicago by Mr. Viles. The Wedgwood Museum at Etruria, Staffordshire, where the firm continues active under the name Josiah Wedgwood & Sons, Limited, also exhibits a reduction, 10 $\frac{3}{8}$ in. high, of the Borghese form, which bears the number 144. Mr. Frederick Rathbone, of London, tells Mr. Viles he remembers having three specimens of the form in blue, one in green, and one in pink, but none black and white.

Mr. Viles, the late owner of the Chicago specimen, was informed that a Roman artist had modeled the pattern for it from the Borghese Vase—a large antique marble which is now preserved in the Louvre Museum, Paris—under Flaxman's direction. This would seem to indicate Webber or Pacetti as the probable artist. But a letter from John Flaxman himself to Josiah's partner, Mr. Byerley, dated Rome, March 15, 1788, credits the sculptor's work definitely to his friend and studio-mate, Devaere, who became known later, at Etruria, where he succeeded Webber, as John De Vere. He seems to have been a Frenchman. In Rome he used Flaxman's atelier on the Via Felice, where his modeling was always open to the suggestions and to the finishing touches of the master sculptor. Flaxman writes: "When you write to Mr. Wedgwood you will be so kind to inform him Mr. Devaere has been at work with the utmost diligence ever since he has been here on the bas-relief of the Borghese Vase, in which he has succeeded very well, but it will take him some weeks to finish, and after he has done I also shall have something to do to it. Mr. Wedgwood will easily conceive, as this is new work to Mr. D., he must needs be slow at first, especially as he takes so much pains. As a proof he follows his studies well, he has already gained the Pope's first silver medal for a figure modeled at night in the Roman Academy." (Meteyard, *Life of Josiah Wedgwood*, vol. II, p. 588). Devaere must have been acquainted with Piranesi's two etchings of the ancient marble, and of its unfolded girdle of bas-relief, Plates 83 and 84 of his *Coupes, Vases, Candélabres*. It is indeed probable that the black ground of the sculptures, in the latter engraving, directed Wedgwood's or Webber's attention to Prince Borghese's sculptured crater as the best model for another cameo vase in Barberini black jasper. The ceramic copy reproduces the Bacchus and Poetry, the tipsy Silenus, and the merry fauns and bacchantes of the original, late Greek marble with accurate fidelity.

The body of the Viles vase was executed in three pieces, with a twist of ribbon interposed between the figures and the vine wreath above them. This was introduced to mask the junction of the upper two sections of the ceramic copy, and is absent in the Paris marble. In the place of the finely restored handles of the Wedgwood vase, the

marble has only four satyr heads. The plinth and foot were also done separate and stuck together. Body and foot are joined by bolting. The conical lip which receives the cover, and the gracefully decorated cover itself are another free addition to the antique pattern. The point of a tool has scarred the jasper on one side of the ascending lip, under the black dip. Parts of the white relief work are gobbed. The major part of it is cleanly and sharply molded, as if from a wheel-tooled model, and has also been directly retooled on the wheel itself. This observation agrees with the usual conditions of Josiah Wedgwood's own output.

The type impression mark, on the white body under the plinth, is ^TWEDGWOOD. It sheds little light on the date of manufacture, inasmuch as the firm rarely departed from this form, and returned to it regularly when it did. Josiah Wedgwood himself used the letter "T" on trial pieces to signify TOP of the biscuit oven.

In a letter from the Wedgwood Company, which Mr. Viles has kindly communicated, under date of June 28, they say that they have no record of the number of these vases made. "There are, however, very few to be seen in the public museums and private collections, so that they are doubtless very rare."

ALFRED EMERSON.

Chicago, June 30, 1909.



GIFT TO THE ROMAN MUNICIPALITY.—"The German Archæological Institute here [Rome] has presented to the Roman municipality the only existing fragment of one of the bases of the columns of the temple of Jupiter Capitolinus."

ISOLATION OF THE BATHS OF DIOCLETIAN.—It is proposed to isolate the Baths of Diocletian by the removal of the shops now at the base of this ancient building. The cost is estimated at nearly \$90,000.

EXCAVATIONS AT ADRIA, ITALY.—The excavation of Adria, Italy, is said to have been begun, with prospect of much enlightenment upon the nature of the Etruscan civilization. The town was at one time a seaport, but now the site is 17 miles from the coast.

LOCATION OF HOMERIC ITHACA.—A. E. H. Goekoop differs from Doctor Dörpfeld in the location of the Homeric Ithaca. He contends that it was located in southern Cephallenia. An examination of all the passages in the Illiad and Odessey referring to Ithaca is the basis of his theory.

BOOK REVIEWS

SOCIOLOGY, MAGIC, AND RELIGION OF THE EASTERN ISLANDERS¹

VOLUME VI of the *Reports of the Cambridge Anthropological Expedition to Torres Straits* is the first of this series to appear. This *Report* deals with the sociology, magic, and religion of the Eastern Islanders, and comprises reports by A. C. Haddon, W. H. R. Rivers, A. Wilkin, and C. S. Myers. The first chapter is devoted to folk-tales, of which 23 are given. These cover a wide range of nature, culture, and religious myths.

In the next three chapters Mr. Rivers takes up genealogies, kinships, and names. The chief difficulty in collecting genealogical data was the custom of adoption and the use of different names for the same individual. In spite of these difficulties, Mr. Rivers was surprised at the agreement which he found in the genealogies as obtained by him from different sources.

Chapters on various ceremonies and customs follow, the most interesting of which are those on *Magic* and *Religion*, factors which are closely related and enter into everyday life. In their omens there are some with which we are familiar, as: "If a man sneezes, *siau*, it is a sign that some one has mentioned his name, and he immediately cracks the joints of each thumb by closing on it the fingers of that hand." Shooting stars are omens and different birds foretell events; the kingfisher can see ghosts and warn people of their approach. Other birds tell when the yams are ready to eat, and when turtles will be numerous in deep water.

The principal religious cult is that of Bomai and Malu, which was introduced from the western islands. The mythical beings are always unmarried and of supernatural birth. If any of the natives, when recounting mythical adventures and stories, are asked if the hero were married, they would reply: "Certainly not! He comes in his own manner without a mother or a father." Mr. Haddon concludes the chapters on religion and mythical beings by stating that they "did not discover in Torres Straits anything like an All-Father or Supreme Being."

¹*Reports of the Cambridge Anthropological Expedition to Torres Straits*. Vol. VI, *Sociology, Magic, and Religion of the Eastern Islanders*, pp. xx, 316, xxx plates. Cambridge; at the University Press. New York, G. P. Putnam's Sons. 1908.

THE ACROPOLIS OF ATHENS²

SO MUCH has been written on the Acropolis of Athens, and so many historical and archæological questions raised, some of which may never be satisfactorily answered, that a concise statement of our present knowledge, such as the recent volume on *The Acropolis* by Prof. M. L. D'Ooge, is very welcome. In the preface the author states that: "The present volume is an attempt to give a summary of the most important contributions to this history and to state the results of personal study of this site and of the ruins upon it."

The arrangement of material is mainly historical, beginning with the caves and grottoes in the sides of the Acropolis to which mythological legends have been attached; its history and development is carried down to the bombardment in 1687 and the latest excavations by the Greek Archæological Society.

The book is interesting for the general public, but references, appendices, and a "Select Bibliography" are added for the use of special students. Profuse illustrations and diagrams make it exceedingly valuable and interesting.

GREEK ARCHITECTURE³

A VERY comprehensive although short work on *Greek Architecture* has been prepared by Prof. Allan Marquand, Ph.D., L.H.D., of Princeton University, and forms one of the volumes in the series of *Handbooks of Archaeology and Antiquities* being published by the Macmillan Company. The author traces the development of Greek architecture from earliest times, considering not only the architectural forms, proportions, and composition, but also the materials used, the methods of construction, and the decoration. The multitude of illustrations, about 400, from drawings and photographs, add greatly to the value of the book. The author has been careful to explain the technical terms which are used of necessity, so that the text is easily within the comprehension of those who are not professional architects.

Doctor Marquand is to be complimented for preparing a work which so well fulfills the purpose of a "handbook" and is of such value as a book of reference.

²*The Acropolis of Athens*. By Martin L. D'Ooge, Professor of the Greek Language and Literature in the University of Michigan; pp. xx, 405. Fully illustrated. \$4 net. New York: Macmillan Company. 1908.

³*Greek Architecture*. By Allan Marquand, Ph.D., L.H.D.; pp. x, 425. Fully illustrated. \$2.25 net. The Macmillan Co., New York. 1909.

EDITORIAL NOTES

EXPEDITION TO CENTRAL AMERICA.—Among the expeditions of the School of American Archæology for this year is one to Central America, under the auspices of the St. Louis society, which will start on the 15th of September and remain in the field until about the end of the year.

TO REPAIR THE OLD PALACE, SANTA FE.—No actual work has been done as yet on repairing the Old Palace and fitting it up for the use of the School of American Archæology, for the appropriations are not available until December 1. All the preliminary arrangements, however, are being attended to, so that there may be no delay in the winter.

SARCOPHAGUS FOUND AT TARANTO, ITALY.—In the course of excavations at Taranto, Italy, a sarcophagus containing two intact bodies of the IV century A. D. was found recently. There were also "many valuable Ionic and Corinthian vases, sepulchral furniture, and a curious terra-cotta group representing Cupid kneeling on the shoulder of Venus."

PREHISTORIC GERMAN CEMETERY.—A prehistoric German cemetery has been discovered at Kessenick, near Maeseyck, at a depth of 30 ft. Many skeletons were found in urns. While the urns are of various shapes, the decorations indicate German origin. Some years ago, a Roman cemetery was discovered near the same place.

NEW HISTORICAL MUSEUM AT FLORENCE.—An historical and topographical museum has been founded at Florence. There are 14 rooms, containing a collection of pictures, photographs, and prints of old Florence and its festivals. Among the photographs are 28 taken by an Englishman, G. Brampton Philpot, in 1859, before the destruction of the city walls.

RELICS OF THE STONE AGE IN MEXICO.—It is reported that Prof. Jorge Engerrand and Mr. Fernando Urbina, who were sent from Mexico City on an archæological expedition to the woods of Chiapas, made interesting discoveries early in the year. Aside from fossils of the Pliocene and Miocene periods, they found many relics of man in the stone age. At some distance from the town of Concepcion, an extensive deposit of weapons was found.

ANCIENT TOYS IN THE BRITISH MUSEUM.—One of the most interesting exhibits in the British Museum is a case containing ancient toys. Among them are a chariot with two prancing horses, a leaden horseman, a fox terrier with a collar and a long tail; a monkey eating a bun, and a doll's chair and sofa. There are also many mugs and dolls; many of them are jointed and carved. But, best of all, is a faded rag doll.

NEED OF FUNDS BY THE NEW MEXICO HISTORICAL SOCIETY.—The New Mexico Historical Society makes an appeal for funds to purchase a collection of official papers now in the hands of a private collector. They illustrate the Mexican era, especially from 1821 to 1846. The society is particularly desirous of securing these, as most of the archives of the territory have been taken to Washington.

ORIGIN OF THE IRISH HORSE.—Dr. R. F. Scharff contends that the Irish horse was of Libyan origin. Not long ago Mr. George Coffey obtained the most complete remains of an ancient horse yet discovered in Ireland. The human implements and weapons found with them in the Craigwarren Crannog, County Antrim, indicate that the crannog was inhabited early in Christian times. The horse remains strongly resemble the Arab type of horse.

REMOVAL OF OBELISK TO CAIRO.—It is reported that Mr. T. C. Penfield, former United States representative in Egypt, proposes to transport the obelisk of Rameses the Great, now at the Temple of Luxor, to Cairo. He justly feels that it is not fair when Rome, Paris, London, and New York have examples of the obelisk, for Cairo, the Egyptian capital, not to have one. He plans to do this at his own expense, the obelisk to be placed at any point in Cairo that may be designated by the government.

GERMAN EXCAVATIONS NEAR MILETUS.—Reports from Berlin tell of progress in the excavation of the temple of Apollo, near Miletus, under the direction of Doctor Wiegand. The entablature and columns of the northeast corner were found in the position in which the earthquake which destroyed the building threw them. The frieze is adorned with carved Medusa heads, each more than 3 ft. high. Baths and a Roman temple dedicated to Egyptian gods were also found. A bust of Helios-Serapis was also discovered.

PALÆOLITHIC IMPLEMENT FOUND NEAR THE BRITISH MUSEUM.—There has recently come to the notice of Mr. Worthington Smith a palæolithic implement found in 1902 in the course of repairing a drain not far from the British Museum. It was found at a depth of 10 or 12 ft. "It is somewhat abraded,

blackish, clouded livid, and lustrous all over. It agrees well with the famous Gray's Inn implement found in the XVII century." An oval flint pebble forms part of the base, evidently left by the clever flaking of the maker.

ORIGIN OF THE IONIC FRIEZE.—H. Thiersch believes with Birt that the Ionic frieze developed from the painted and sculptured bands of figures on Egyptian walls. "It was not an original part of the Ionic entablature, but was first used in Asia Minor to decorate a bare wall. This was at first its object in Greece, but the earliest examples, the Parthenon and Phigalia friezes, were not effectively placed. On the Erechtheum and on the Nike temple the case was different, and this use of the frieze was afterward carried back to Asia Minor."

USE OF ANCIENT LAMPS.—M. Ringelmann has been carrying on experiments in the use of ancient lamps. Three Punic lamps from the VII, VI, and IV centuries B. C. were used with olive oil. Wicks of pith, goat, sheep, and dromedary hair, as well as linen, were tried. The linen wicks were the only satisfactory ones. They must be small, however, to avoid smoke. With a wick 3 mm. in diameter composed of 12 linen threads, he obtained a flame 30 to 35 mm. high and 6 to 8 mm. thick, provided salt was added to the oil. There was no smoke, but there was some odor.

SIGNIFICANCE OF SCRATCHES ON FLINT IMPLEMENTS.—At a meeting of the Prehistoric Society of East Anglia [England] in March, Doctor Sturge gave an address on the *Significance of Scratches on Humanly-worked Flints*. He regards such scratches as of great importance in the study of Pleistocene geology, especially when the hardness of undecomposed flint is taken into consideration. He declares that no satisfactory explanation except ice action can be found, but urges care in the examination of the facts. He believes that the presence of these scratches on the hard, lustrous surfaces of fine chalcedonic flint may give the clue to geologic time.

COMPOSITION OF FATTY MATTER IN MUMMIES.—Chemical analysis of the fatty matter extracted from Coptic mummies dating from 500 B. C. showed the fat to be largely oleic acid, but with no trace of any volatile acid. Egyptian mummies from 1500 B. C. contained volatile acids of the fatty series in the form of soda salts found mainly with the "natron" filling the internal cavities of the mummies. Natron is a mineral consisting of sodium carbonate, sodium sulphate, sodium chloride and calcium carbonate. The volatile acids could not have come from the butter and grease used in embalming, but must have been derived from the decomposition of the tissues of the body, fixed by combination with the natron.

REMAINS OF MAMMOTH.—“Remains of a mammoth have been found at Selsey Bill [England], below high-water mark, embedded in a fresh-water deposit of red clay, which is usually thickly covered with shingle. The bones were scattered and broken, but the molar teeth of both jaws were well preserved, and indicate that the animal was an ordinary mammoth, though not fully grown. Several hundredweight of bones were removed. Some of the teeth weighed from 6 lbs. to 8 lbs. each.”

NEW EXPLANATION OF THE “HADES RELIEF.”—Dr. Karl Frank offers a new explanation of the Babylonian bronze plaque called the “Hades Relief” (see illustration on p. 171, RECORDS OF THE PAST, Vol. III, 1904), which has usually been interpreted as descriptive of the soul’s descent to the underworld. He considers it a talisman made to protect a patient against the fever demon, Labartu. There are 4 divisions on the tablet; the top line gives the symbols of a number of gods; the next row shows 7 demons fighting, probably arrayed against the fever demon pictured in the lowest division; in the third section is the sick man, with hands uplifted in prayer, accompanied by two men in fishskins; the lowest division shows Labartu on an ass in a boat, departing from the sick man.

PREHISTORIC COPPER MINE IN ALASKA.—On Latouche Island, Alaska, is a copper mine called Big Bonanza. Aborigines were evidently acquainted with this ore deposit, for several wheelbarrow loads of stone hammers were discovered at the base of the cliff in which the deposit outcrops. The hammers are notched for the accommodation of handles, but no handles were found. Many of the hammers were broken by use; probably they had been used to pound the native copper out of the crevices in the rock. The identity of these ancient miners is unknown, but evidently they worked long ago, for the handles have been completely decomposed and the hammers buried in the soil. Although the present Indians knew the Big Bonanza outcrop, they did not understand it as valuable for metal. They used pieces of the ore merely to produce a black stain.

HEAD OF HERACLES IN PHILADELPHIA.—In a private collection in Philadelphia is a head of Heracles said to have been found at Sparta in 1908. The rear half is missing. The story is that it was found built into a wall, face inward. The weathered condition of the broken portion tends to confirm this story.

The head is of Pentelic marble, 9 1-3 in. high. “It represents the god as beardless, with the scalp of the lion drawn over the top of his head so that the muzzle and teeth of the beast come down over the forehead.” The characteristics of the face are very marked, and are so similar to those of the male heads attributed to Scopas on the basis of the two heads from the pediments of the temple of Athena

Alea, discovered at Tegea in 1879, that this head may be attributed to Scopas or to some Greek sculptor dominated by his influence.

WORK OF FELLOWS AND ASSOCIATES OF THE SCHOOL OF AMERICAN ARCHÆOLOGY.—“Mr. Sylvanus G. Morley, Central American Fellow, began in January the study of the orientation of Maya temples. Mr. Morley is spending the first part of the year in the field in Yucatan and, at last reports, had finished his field observations upon more than 40 buildings.

“Through the generosity of Mrs. John Hays Hammond, the School has been enabled to engage Adolph F. Bandelier, the historian and archæologist, as a research associate for 1909-10. Mr. Bandelier's immediate work will be the preparation for publication of unpublished historical and archæological notes on the Southwest, especially the Rio Grande Valley.

“Since June, 1908, Mr. John P. Harrington has been working, as a volunteer assistant, on the myths and languages of the Tewa of the Rio Grande Valley. He is still engaged in working up the results of the field season of 1908, together with the linguistic material from certain Rio Grande Pueblos in the possession of the Bureau of American Ethnology.” [Bulletin No. 2, School of American Archæology.]

KNAP HILL CAMP, ENGLAND.—In *Man* for April, Mrs. M. E. Cunnington reports an interesting feature in the entrenchments known as Knap Hill Camp, in Wiltshire. On one side the hill is so steep as to need no artificial defenses. On the other side is an entrenchment consisting of a single rampart and ditch.

The ditch has become silted up level, and there are 6 openings through the rampart. It seems from excavations that these gaps are not the result of wear or any accidental circumstance, for outside of each gap, and corresponding to it, a solid gangway of unexcavated ground was left. Each of these causeways is 18 ft. wide, but the sections of wall vary in length from 42 ft. to 122 ft.

Some have explained these gaps by supposing that the works were never finished. Mr. Cunnington advances the theory that the solid causeways were left as platforms from which to defend the walls. No part of any section of the wall was out of reach of missiles thrown from some one of the causeways. Hence, by making use of these platforms, the defenders could prevent the scaling of the walls.

“Flint flakes and rude pottery have been found on the floor of the ditch, and it is believed that the camp is of early date, that it belongs to the bronze, or even to the late neolithic period.”

BIRD-STONES IN WISCONSIN.—The January-February issue of the *Wisconsin Archeologist* is devoted to a description of the bird-stones of Wisconsin, by Charles E. Brown. These stones vary in shape from an almost featureless bar of stone to more realistic

forms, with eyes and tail well differentiated. Their exact use is unknown, but without doubt they had some ceremonial significance. Evidently, they were always handled with great care, for few broken or unfinished specimens have been found.

There are at present 54 specimens known in Wisconsin, most of them in public museums or in notable private collections. The material is usually either plain or banded slate, though soapstone and sandstone also appear, as well as some harder rocks. Most of the specimens reported were found in the eastern and southern part of the state. Thirty are surface finds, found during the cultivation of aboriginal village sites or other places where they had been left by their owners. Four accompanied burials. None of these seem to have accompanied mound interments. With one burial was a flint drill or perforator, $4\frac{1}{2}$ in. long. With another were several articles of native copper.

"It is the author's belief that bird-stones were introduced into Wisconsin from the Ohio region, where objects of this class appear to be native, and are far more abundant. Their introduction came about either through the commerce which existed between the inhabitants of the two regions, or through tribal migrations. The area of their distribution in Wisconsin lies directly along a principal route of aboriginal movement. Their comparatively small number, and the fact that of the specimens found nearly half are made of Huronian or striped slate, a material which does not occur in southern Wisconsin, strengthens the belief that they are imports. If any of those described as made of other materials are the productions of native artisans, it is probable that their form was suggested by those procured in trade."

There is no mention in early Wisconsin history of the use of bird-stones in the religious or other observances of the local tribes. Although there is as yet a lack of local data bearing upon the subject, the belief exists that their use continued into this period.

ISAIAH'S KNOWLEDGE OF THE SUDAN.—Professor Sayce has recently spent some time in the Sudan on the White Nile, and returns with great respect for the geographical knowledge which Isaiah possessed. That region is covered with swamps called the "sudd." There is a dense growth of papyrus, sword grass and a plant with yellow blossoms, known as "ambach," all of which reach a height of 15 ft. in places. Much of the vegetation grows on cakes floating on the series of lakes through which the White Nile forces its way. Many poisonous insects make their home there, but little other animal life is present. On spots where the mud rises above the water level, the Dinka and Shilluk negroes build their huts of thatch. These negroes are the poorer relatives of the surrounding tribes. They are tall and smooth faced. They are lazy, but are submissive to military discipline, forming the backbone of the black regiments in the Anglo-Egyptian army.

"In the Revised Version of the Old Testament, Isaiah's prophecy [chap. 18] begins as follows: 'Ah, the land of the rustling wings, which is beyond the rivers of Ethiopia; that sendeth ambassadors by the sea, even in vessels of papyrus upon the waters, saying, Go, ye swift messengers, to a nation tall and smooth, to a people terrible from their beginning onward, a nation that meteth out and treadeth down, whose land the rivers divide!' 'The sea,' it must be remembered, is the name still given by the natives of Egypt and the Sudan to the Nile, which at the time of the inundation looks like a veritable sea; and the word translated 'papyrus' is properly a 'reed,' and denotes, as acquaintance with the sudd has now informed us, not the papyrus, but its companion reed, the ambach. The Revised Version, 'a nation that meteth out and treadeth down' is, moreover, less accurate than the Authorized rendering, 'a nation meted out and trodden down,' though neither is quite exact. The reading of the Hebrew original, in fact, is uncertain; as it stands, the word rendered 'meted out' is literally 'line of line,' in which some commentators have seen a reference to the custom of which we have a record in II Samuel 8:2, where we are told that David measured his Moabite captives with two lines, 'to put to death and one full line to keep alive.' In any case, Isaiah alludes here to slave hunting; the nation of whom he speaks was bound with the fetters of a slave and 'crushed' by slavery."

The Ethiopian king was planning a campaign against the Assyrian invaders of Palestine, and accordingly summoned recruits from the semi-subject negro population of the Sudan. It was with these soldiers that the Ethiopian kings subjected Egypt to their control. With their help the Ethiopian kings of Egypt, So or Shabaka, and his successor, Tirhakah, checked the Assyrian advance and drew away Sennacherib's army when he first threatened Jerusalem. This deferred the siege of Jerusalem till the unwholesome season; pestilence followed, and the withdrawal of the army from before the city. [See Sunday School Times, May 1, 1909.]

LATE CELTIC RUBBISH HEAP NEAR OARE, WILTSHIRE.—On the high ground about a mile northeast from Oare, Wiltshire, England, is a low, irregularly shaped mound which is an ancient rubbish heap. The mound is only 100 yds. from the rampart of the large earthwork known as Martinsell Camp. The mound is 63 ft. long by 43 ft. across the widest part, and is never more than 2½ ft. above the ground level. Large numbers of potsherds have been found in it; so many, in fact, that it has been suggested that it represented the accumulated debris of a pottery. As none of the pottery fragments show evidence of being rejects, and as there were none if the objects found which are particularly likely to have been used by a potter, a different explanation seems necessary. There are numerous fragments of bones, particularly of the sheep, pig and ox, and the pottery is all in fragments; facts, which together with the occurrence of odds and ends which had been rendered useless before being

added to the pile, indicate that it is simply the accumulation of rubbish from some dwelling near by.

The pottery is in general of two kinds, *i. e.*, native and imported. Two-thirds of the native pottery fragments are of one type, bowls with beaded rims. The sizes vary from ones holding not more than a gill to those holding a gallon or more. Most of the bowls are of gray ware, varying from very pale gray to black; others are brown of various shades, and occasionally there is bright red. Often the paste is mixed with sand, pounded flint or quartz. The surface is often very smooth, finely tooled and polished. They are devoid of ornament except for incised lines around the shoulders of a few. Jugs, jars, flat plates or saucers of native manufacture are also represented. All were wheel-turned and well made and baked.

The bowls with bead rims so common at this point appear to be a purely British type and characteristic of late Celtic pottery.

The imported pottery includes a fragment of Belgic black ware of the I century A. D.; a fragment of green glazed Roman ware; pieces of thin white and cream-colored pottery, perfectly baked, hard and smooth, possibly from Rheims; fine micaceous buff-colored ware, painted gray on the outside and red on the inside with "roulette" ornamentation; pieces of Arretine ware, two of which show part of a maker's stamp. One of these seems to end in the letters PLEV, an unknown stamp. The other shows the two letters AT, which Mr. Reginald Smith thinks may be part of the name ATEIVS, which occurs on a number of British Museum specimens.

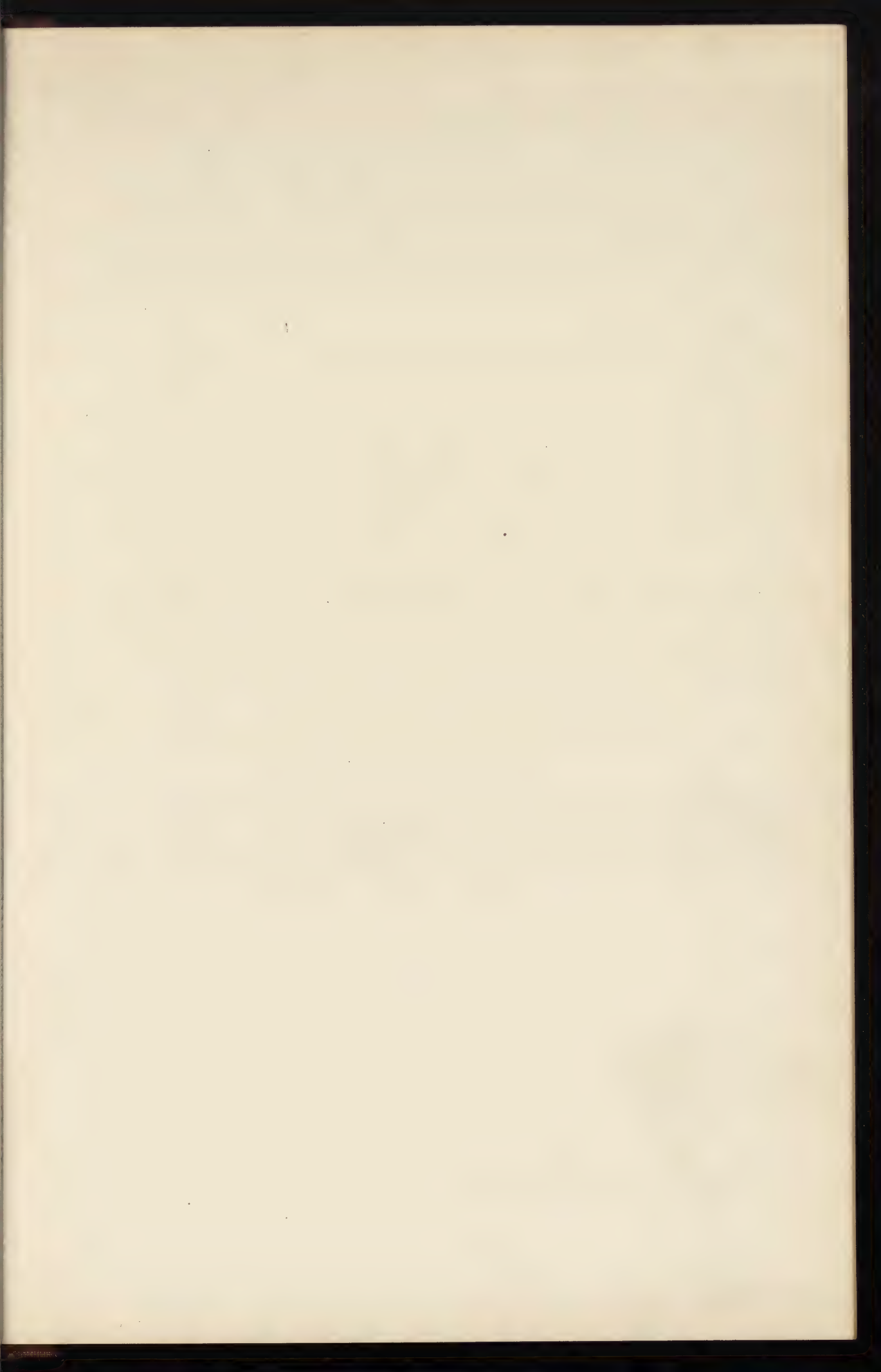
Fragments of Arretine ware are rare in Britain. Enough is known of the date of its manufacture to aid in dating this mound. The art of making this ware was introduced into Gaul in the early years of the I century A. D. The name of Ateivs seems to have been that of an important manufacturer during the reign of Augustus.

Samian pottery—a red glazed Gaulish ware—is entirely absent from the mound at Oare, indicating that its site was abandoned before that ware was in the market, *i. e.*, before 30 A. D.

Three fibulæ were found, two of iron and one of bronze, the latter of a later type, "the end of the bow is flattened to cover the spiral spring, and the spring is a separate piece of metal. The pin was of iron and worked on a sort of a hinge on the small bar of iron on which the spring is coiled."

Mr. Smith considers these fibulæ as belonging to the century from 50 B. C. to 50 A. D., which agrees with the evidences of date mentioned above. Altogether, the early years of the Christian era seem to have been the time when this rubbish heap was formed.

"Among the other objects found were two iron sickle-shaped keys, a sling stone of baked clay, an iron bridle bit, a pair of bronze tweezers, the handle of a weaving comb, a bone gouge, several worked bones, 8 pottery spindle-whorls, 6 discs or roundels of pottery, fragments of worn quern stones, pieces of brick and iron slag."





ANCIENT INCA VASE BROUGHT FROM CUZCO BY PROF.
BINGHAM. HEIGHT 6 INCHES

RECORDS ^{OF} THE PAST

VOL. VIII



PART V

BI-MONTHLY

SEPTEMBER-OCTOBER, 1909



CUZCO AND SACSABUAMAN

IN JANUARY, 1909, while on my return journey from the Pan-American Scientific Congress at Santiago de Chile, it was my privilege to be able to spend a short time in Cuzco. This ancient capital of the Inca Empire has recently been brought several days nearer civilization by the completion, in the latter part of 1908, of the Southern Railway of Peru. For the traveler who comes from New York and desires to reach Cuzco in the easiest and quickest manner, it is now possible to make the journey in less than 4 weeks. The obvious route is by steamer from New York to Colon, thence by rail to Panama, making connections there with one of the new express steamers that connect the Isthmus with Peru and Chile. The traveler may arrive at Mollendo, the ocean terminus of the Southern Railway of Peru, in 21 days from New York. From here it is possible to reach Cuzco by 4 days of railway travel. As there are no sleeping cars, the nights must be spent at Arequipa, Juliaca and Checcacupe.

Arequipa deserves to be celebrated as an ideal resort for travelers. At present it is all too little appreciated, although it has long been known as the site of the Harvard Astronomical Observatory. Charmingly situated, the city has a delightful climate, an excellent hotel, many picturesque buildings and a number of remarkable churches and monasteries that contain some very interesting paintings dating from the XVI century. Best of all, Arequipa is surrounded by a rare collection of mountains that range from El Misti, the active volcano,

19,000 ft. high, to snow-capped Chachani, over 20,000 ft. With the improved steamship service of the West Coast, Arequipa will soon come to be better appreciated.

For excursions into the interior, it is a good outfitting point. Well stocked English warehouses offer a complete assortment of supplies. Their best customers are the foreign mining and civil engineers.

The second day's journey from Mollendo takes one from Arequipa, past the warm mineral springs of Yura and the glaciers of Chachani to Juliaca on the shores of Lake Titicaca. On the way the road attains an altitude of 14,666 ft. at Crucero Alto, not far from the two charming mountain lakes of Saracocha and Cachipascana.

Juliaca is only 12,550 ft. above the sea, that is to say, it is scarcely 20 ft. above the present level of Titicaca. The hotel here is good enough in its way. At any rate, it is not so bad as to prevent one from stopping off for a couple of days to visit the interesting Inca ruins of Sillastani on the shores of Lake Umayo, 20 miles away.

At Juliaca the railroad branches, one line going south 30 miles to Puno, whence a steamer plies across Titicaca to Guaqui in Bolivia, connecting there with the railroad for La Paz.

The other line goes north from Juliaca to Cuzco. At first the road crosses plains that were covered in ages past by the waters of the great Titicaca, then it climbs slowly through the mountains of Vilcanota, once the southern boundary of the Inca kingdom. At La Raya the altitude is 14,150 ft. From here the descent is rapid as the line follows the valley of the Rio Vilcanota to Sicuani, for many years the terminal of the railroad. Twenty-five miles farther on is Checcacupe, where one must now spend the night. A new railroad hotel offers clean quarters. The last stage of the journey may be finished the following morning.

At the time of my visit the railroad from Checcacupe to Cuzco had only just been completed. As the track runs along the steep side of a valley which has an embarrassing habit of sending down avalanches of earth and stone quite unexpectedly, the journey was a bit slow and uncertain. The natives of the valley are fond of exaggerating its irregularities, and said it would take several days, but I found that my train reached Cuzco on time, notwithstanding all their prophecies to the contrary.

The scenery during the last day's travel is the prettiest of the whole trip. The valley rapidly narrows as it descends, and the Vilcanota becomes a roaring torrent. At Quiquijana the train stopped near the end of a beautiful stone bridge, a relic of Spanish colonial administration. While our fellow passengers were busily buying pastry and "chicha" (native beer that tastes like cider), we enjoyed a glimpse of a very picturesque scene. Tiled-roof houses with white-washed walls; the adobe tower of a long, mud-colored church; the graceful arches of the fine old bridge, and a troop of loaded llamas looking at the train with great big, timid eyes and inquisitive ears, while prevented



LLAMAS IN THE STREETS OF CUZCO. ON THE LEFT
RUINS OF THE CHURCH OF SAN AUGUSTINE



STREET IN CUZCO SHOWING CONDITION OF THE PAVEMENT
AND THE OPEN SEWERS

from running away by a couple of peons in dirty-white felt hats and brilliantly-colored ponchos.

From Quiquijana the road continues to follow the west bank of the Vilcanota until it reaches the Huatanay River, where it turns abruptly to the left and enters the lovely valley that was once the very heart of the Inca Empire. The valley of the Huatanay is still densely populated, as it always has been. In quick succession the train passes the large Indian cities of Oropeza, San Geronimo, and San Sebastian. Suddenly we stopped in the fields and took on a group of laughing Peruvian sports who used a piece of red flannel to save themselves the trouble of going to the nearest railway station. One of the joys of this railroad is that everybody that is anybody, flags the train whenever he pleases. The habit interferes somewhat with the timetables, but no one cares (except the railroad people), and it gives an individual a great sense of his own importance to go out in front of his house and make the train stop while he climbs on board.

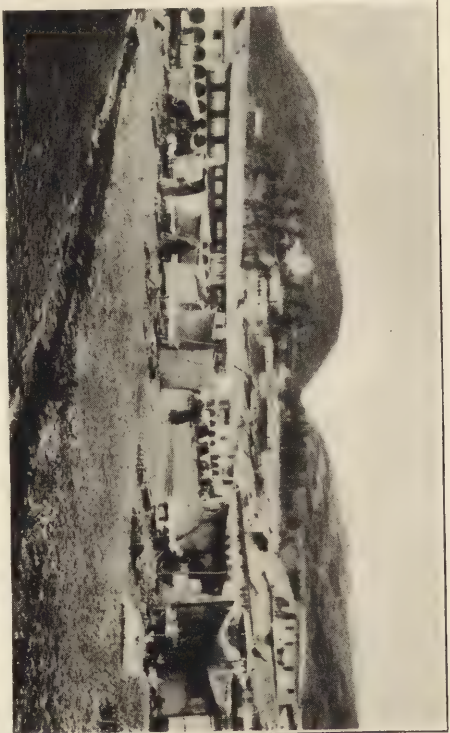
A few minutes later the train pulled up at the temporary Cuzco station, a group of small corrugated-iron buildings of very recent construction, which stand in a plain a quarter of a mile south of the city.

Behind Cuzco rises the Sacsahuaman hill, crowned by its famous fortress, the most magnificent monument to the achievement of prehistoric man in America. To the west and east of the plain are the slopes of pleasant green hills.

As one approaches the city, Cuzco is seen to be intersected by 3 little gulches or streams that rise in the hills to the north. Long streets run parallel to these streams. An avenue of trees, which marks the western and most agreeable approach to the town, leads into one of the principal streets of the best residence quarter, where Spanish houses have almost completely obliterated all traces of Inca occupation. But as soon as the center of the city is reached, the occasional presence of long walls of beautifully cut stone, laid without cement, and fitted together with the patience of expert stone cutters, assure one that this is verily the Cuzco of Pizarro, Garcilasso de la Vega, and the Spanish chroniclers.

As you ramble about the city the one distinctive feature that separates Cuzco from all the other cities in America, is the prevalence of these long, dark, sombre walls. When you look at a building from a distance, it seems to be an ordinary two-story Spanish house with a red tiled roof, wooden balconies, and white-washed adobe walls. As you come a little closer, it strikes you that the white-wash has been worn off the lower part of the walls, but when you come closer still, you find that this portion consists of Inca stone work, fresh and attractive and unpainted.

At first sight this solid wall of masonry generally appears to be formed of rectangular blocks, laid with remarkable precision. On closer examination, you find that there is scarcely an absolute right angle in the whole wall. Each stone is slightly irregular, but this



Terrace on the crest of Sacasahuaman facing Cuzco

Corner of Sacasahuaman

North side of Plaza. Hill on the left is Sacasahuaman. Church half way up the slope is near the site of the palace of the first Inca

Looking down the line of fortifications from the terrace

irregularity matches so exactly with that of the stone laid next it that "there is no space," as was said by the first Spanish chronicler, "for the blade of a knife to enter." Yet no one knows exactly how many hundred years ago the Incas built the wall. The result of this careful workmanship combined with the use of dark-colored stone was to produce a sombre dignity and solidity that is very impressive.

In some of the walls, the outer surfaces or faces of the stones are perfectly flat, but in general they are slightly convex. The stones vary in length from a few inches to several feet, although it is very rare to find rectangular blocks more than 5 ft. long. It is said by those who



A BIT OF THE WALL OF THE ANCIENT CONVENT OF THE VIRGINS
OF THE SUN, SHOWING THE BEAUTY OF THE STONE CUTTING

have traveled extensively, that the world has nothing to show in the way of stone cutting and fitting to surpass the skill shown in the building of these walls.

The characteristics of Inca architecture are in part the same as those of the older Egyptian ruins. Individual stones of great size; doors, narrower at the top than at the bottom, and walls with a base markedly wider than the apex so that the sloping front is a distinct feature. Probably the same methods which the Egyptians evolved in order to put in position large blocks of stone, too heavy to be lifted by

the hands, were employed by the Incas. They seem to have thought nothing of placing stones weighing several tons on top of a wall 15 ft. high.

The corner stones of buildings were frequently rounded off, but there are almost no circular walls in Cuzco. The principal exception to this is in the present Dominican Monastery, once the Temple of the Sun, where the end of one of the buildings is rounded like the chancel of an Episcopal church. This is, perhaps, the finest bit of stonecutting in Cuzco, and is shown off by the Dominican Fathers with great zest. The late E. G. Squier, who lived for some time in the Convent, and made a minute examination of these stones, found that the sides of contact of each stone are true radii of a double circle, and that the line of general inclination of the wall is perfect in every block.¹



PART OF THE WALL OF THE PALACE OF THE INCA ROCCA. IN THE CENTER IS THE FAMOUS STONE OF 12 ANGLES WHICH WAS NOTICED BY THE CHRONICLERS OF THE CONQUEST OF PERU

The most interesting and most striking wall in Cuzco is that of the palace said to have belonged to the Inca Rocca, which is composed of very large stones of irregular size and of every conceivable shape. Although the walls of most of the ancient palaces and temples are of nearly rectangular blocks, the stones in this wall, which has frequently been photographed, are of all shapes and sizes, some with as many as a dozen angles, but all fitting perfectly.

Thirty years ago when Mr. Squier was here, there was no inn, and he was obliged to depend on the kindness of the local officials and the hospitality of the monasteries. But there is now a commodious "hotel," where meals and decent bedrooms, as good as can be expected

¹Squier's *Peru*, page 437.

in this part of the world, enable one to be fairly comfortable. Of course the "plumbing" is conspicuous by its absence, and there is by no means so much luxury as one finds at the new hotel in Arequipa. However, the Incas were not a remarkably cleanly folk, and it is as well not to expect too many of the conveniences of the XX century when visiting a metropolis of the XV.

Opposite the hotel is the church and convent of La Merced. Its cloisters are noted for their fine old paintings, their elaborately carved columns, and stone arches. Its gardens are filled with flowers and shrubs that one rarely sees outside. In the crypt beneath its altar there are buried, so it is said, many heroes of the days of Spain's all-conquering supremacy.

Not far from here is the warehouse of Sr. Lomellini, Cuzco's leading merchant, an Italian gentleman who, while building up an



AN ANCIENT INCA DOORWAY, MODERNIZED AND USED
AS THE ENTRANCE TO A LARGE WAREHOUSE

extensive business, has devoted himself to a study of ancient Inca civilization. He has brought himself in as close touch with it as possible; the very entrance to his warehouse is a fine specimen of an Inca doorway, while his home, half way up the side of Sacsahuaman, was once the site of the palace of Manco Capac, the first famous Inca.

In his dining room he has gathered a few of the most remarkable jars that have ever been found in the Incaic tombs. In shape and ornamentation they are not unlike the one here depicted. While this, which came from Sr. Lomellini's collection, is only 6 in. in height, the jars in his dining room are nearly 3 ft. high. He showed me further a few elaborately carved bronze figures or idols that looked very much



TERRACE ON THE CREST OF SACSABUAMAN
FACING CUZCO



ENTRANCE TO THE FORTRESS OF SACSABUAMAN

as though they had been buried for centuries in the mould of a royal mausoleum. Alas, they were "made in Germany," he told me, and are only too faithful copies of interesting originals. Later, I found similar specimens in Lima, where one antiquarian had the effrontery to have 3 of the very same pattern, differing only in color, exposed for sale in one show case.

The followers of Pizarro divided Cuzco among themselves, and on the massive walls of the Inca palaces, built their own homes after the manner of Spanish architecture with patios and corridors. Sometimes they left the Inca wall standing to a height of 6 or 7 ft., while in other instances it still rises to 15 or 20 ft.

It is unfortunate that the Incas did not use cement. In that case the Spaniards would have found it so much more difficult to have destroyed the ancient palaces, that more would have been left for the delectation of students and travelers to-day. Under the circumstances, however, it was a simple matter for the faithful disciples of the church to raise temples and towers of great beauty by the simple process of tearing down the low walled Inca palaces and using the material according to the ideas of ecclesiastical architecture which they had brought with them from Spain.

The most notable instance of this is in the case of the Temple of the Sun, which was transformed into a Dominican Monastery. It will be of interest to recall Mr. Squier's accurate description of the building, for although written 30 years ago, the present condition of the monastery is much as it was at the time of his visit.

"The few ignorant but amiable friars that remain of the once rich and renowned order of Santo Domingo in Cuzco admitted me as an honorary member of their brotherhood, gave me a cell to myself, and permitted me, during the week I spent with them, to ransack every portion of the church, and every nook and corner of the convent. * * * Here a long reach of massive wall, yonder a fragment, now a corner, next a doorway, and anon, a terrace—through the aid of these I was able to make up a ground plan of the ancient edifice, substantially, if not entirely, accurate. Its length was 296 ft.; its breadth, as nearly as can now be determined, about 52 ft."

"The temple proper, as described by Garcilasso, and as my own researches have proved, formed one side of a rectangular court, around which were ranged the dependent structures mentioned by him. It was not built, as has been universally alleged, so that its sides should conform to the cardinal points, but these coincided in direction with bearings of the ancient streets, which were nearly at an angle of 45 degrees with those points. Nor was its door at 'one end exactly facing the east,' so that the rays of the sun, when it rose, 'should shine directly on its own golden image placed on the opposite wall of the temple.' The entrance was on the northeast side of the building, and opened upon a square, or rather a rectangular area, called now, as anciently, the *Inti-pampa*, or Field of the Sun. This is still surrounded by heavy walls of cut stones, sculptured all over with serpents



PART OF THE LOWER AND OUTER WALL, SACSABUAMAN



ANOTHER PART OF THE LOWER AND OUTER
WALL, SACSABUAMAN

in relief, on which are raised the houses of the modern inhabitants. This square was dedicated to the more solemn ceremonials of the Inca religion, and within it none dared enter except on sacred occasions, and then only with bare feet and uncovered heads."²

It is the western end of the Temple that is best preserved. It was here that the wonderful gold figure of the Sun was placed.

One has to be very careful where he steps while investigating the ancient structures for the present inhabitants are no more cleanly or sanitary in their habits than their predecessors.

It is pathetic to see the filth and squalor that surround the walls of the magnificent old edifices. As is well known, the Inca buildings have few windows on the street, most of the openings being toward the court. In order to get a good idea of them I had frequently to penetrate backyards, where there was a striking contrast between pigsties and beautifully cut stone work.

The streets are feebly lighted at night by kerosene lamps affixed to the walls of the buildings by iron scroll brackets that bear the arms of Peru. As an excuse for a sidewalk, two lines of large blocks such as we use for street crossings, sometimes run paralld to the doors of the houses.

The burden bearers of Cuzco are llamas, burros, and Indians. The llamas will carry only a small load in proportion to their size, and seem to take a great deal more interest in life than the patient donkeys who are too often loaded far beyond their strength. There are almost no wheeled vehicles, and the stone paving of the streets is extremely rough and unspeakably filthy. To add to the slime the sewers are open conduits running through the middle of the narrow streets. In the wet season they are frequently flushed by having down-pours. In the dry season they are unspeakable.

Cuzco has, in fact, long been notorious as one of the dirtiest cities in America; and it justifies its reputation. Although one rarely forgets to pick one's way carefully through the streets, the practice soon becomes a habit and does not interfere with the enjoyment of the brilliant colors affected by the Quichua Indians, who form a majority of the population. Their home-made ponchos and shawls are woven of native wool and cotton, yet though the material may be as rare and uncommon as real alpaca, vicuña and llama wool, the brilliant hues are unmistakably aniline. In fact, in the marketplace of almost every city in the Andes, one is pretty sure to find a native peddler whose specialty is the sale of German aniline dyes.

Perhaps the most striking part of the Cuzco Quichua costume is the pancake hat. It is reversible, being made of a straw disc with a cloth-covered hole in the center. On one side, for rainy weather, the disc is lined with coarse red flannel or some other worsted stuff, but the dry-weather side is elaborately trimmed with tinsel and black velvet. Likewise, the loose, baggy cloth that covers the opening in the center is lined with velveteen on the fair-weather side and coarse

²Squier's *Peru*, pp. 439-441.



PART OF THE LOWER AND OUTER WALL
SACSAHUAMAN



LOOKING DOWN THE LINE OF FORTIFICATIONS FROM A SALIENT ANGLE
OF THE SECOND LINE

woolen stuff for rain. The men's hats are slightly larger than the women's, but otherwise the fashion seems to be alike for both sexes.

The great majority of the people of Cuzco speak only Quichua, and pretend to understand no Spanish whatever. As a result, all the Spanish-speaking residents learn Quichua as a matter of course. It is not difficult for the traveler to purchase Quichua-Spanish grammars and dictionaries.

The great plaza of Cuzco, once much larger than it is now, and the scene of many an Inca carnival, is still very picturesque. On its east side stands the massive cathedral and its chapels, said to have been built entirely of stones taken from Inca palaces nearby.

On the south are the beautifully carved stone towers of what was formerly the Church of the Jesuits. Next door to the old Jesuit church is the University, one of the oldest in America, now chiefly devoted to the study of law and politics. Flanking these are picturesque two-story buildings with red tiled roofs and overhanging wooden balconies supported by a row of columns and arches. In the arcades numerous small tradesmen display their wares.

On the west of the plaza and on the north, more two-story houses with arcades are filled with interesting little booths. Here, and on the stones of the plaza, are cloth merchants who have gathered their wares from England and the Continent, besides North and South America; venders of pottery and Quichua toys, made in the neighborhood; market gardeners with corn and potatoes; and peddlers of every variety of article imaginable; some protected from the rain by cloth shelters that look as though they had been taken from the top of a prairie schooner in the days of '49; others squatting on the rough pavement of the plaza, their wares spread out on the skins of sheep or llamas, exposed to wind and weather.

Over all frowns the summit of Sacsahuaman. The immediate front of the famous hill just below the upper terraces is extremely steep. About half way down to the city the spur broadens and flattens out. Here the first Inca built his palace. It is on the lower continuation of this spur between two rivulets that the later palaces and temples of the capital were built. To reach the great fortress the easiest way is to take a mule and ride through the narrow streets, up the ravine to the ancient gateway in the east side of the hill. At first sight it might seem ridiculous not to walk, as the fortress is only 600 ft. above the city. But Cuzco has an elevation of 11,500 ft., and hill-climbing at this altitude is best done on mule back.

As one enters the gorge there is at first little to be seen. Then in its narrowest and most easily defended part one comes suddenly upon a pile of massive rocks, roughly hewn. It is the entrance to the fortress. Huge blocks of stone 5 or 6 ft. high, slightly rounded off and accurately fitted together, are built into a gateway 12 ft. high that opens into a passage defended by a wall of large boulders. This leads to the hilltop. On the side toward the city the slope is nearly



GENERAL VIEW OF INCA CARVED SEATS
NORTH OF SACSABUAMAN .



CARVED SEATS IN OUTCROPPINGS OF ROCK
NORTH OF SACSABUAMAN

precipitous, but approach is made even more difficult near the summit by a series of 3 terraces each 12 or 14 ft. high. There is nothing remarkable about them except the beautiful view of Cuzco, which one obtains from here. It is the north side of the hill, the side away from Cuzco, that is the chief object of interest. Here, facing the natural approach of hostile Caras from Ecuador and savage Indians from the Amazonian wilds, the gentle slope was rendered impregnable by marvelous fortifications. They consist of 3 terraces faced with walls 20 ft. high, built of colossal boulders. It is said that most of the smaller stones have been carried off for building purposes in the city. Be this as it may, what remains is the most impressive spectacle of man's handiwork that I have ever seen in America. Photographs absolutely fail to do it justice, for at best they show only a few boulders, a small part of one of the walls. If taken far enough away to show the whole fort, the eye loses all sense of the great size of the stone units owing to the fact that they are so much larger than any stones to which it is accustomed.

The fortifications are composed of 3 lines of re-entrant angles. The great zigzag walls extend across the back of the hill from one valley to another, enabling the defenders of Cuzco to successfully repel the attack of a very large number of Indians armed with primitive weapons such as bows and arrows, slings and spears.

There are few sights in the world more awe-inspiring than these massive terraces. Their total length is one-third of a mile. The lower wall has an average height of about 25 ft. The middle wall is probably 6 ft. less. The upper wall is nearly the same height as the middle wall.

The Incas were fond of building great terraces, but in nearly every case that I have seen, the front line of the terrace walls is straight, or nearly so. Here, although the walls are parallel, they consist of entering and re-entering angles for their entire length. Like modern fortifications, the employment of these salients enabled the defenders to cover the entire face of the wall. The outer corner of each salient is a conspicuously large block. One of the stones is 25 ft. high and 12 ft. in thickness. Stones 12 ft. square are not uncommon.

Next to the colossal size of the stones which the builders used for the lower wall, the most impressive thing is the care they took to fit the stones together so that they should stand for ages.

Of this wonderful fortress, the Inca author, Garcilasso de la Vega, wrote in the XVI century as follows: "This was the greatest and most superb of the edifices that the Incas raised to demonstrate their majesty and power. Its greatness is incredible to those who have not seen it; and those who have seen it, and studied it with attention, will be led not alone to imagine, but to believe, that it was reared by enchantment—by demons, and not by men, because of the number and size of the stones placed in the 3 walls, which are rather cliffs



PART OF THE LOWER AND OUTER WALL
SACSAHUAMAN

than walls, and which it is impossible to believe were cut out of quarries, since the Indians had neither iron nor steel wherewith to extract or shape them. And how they were brought together is a thing equally wonderful, since the Indians had neither carts nor oxen nor ropes wherewith to drag them by main force. Nor were there level roads over which to transport them, but, on the contrary, steep mountains and abrupt declivities, to be overcome by the simple force of men. Many of the stones were brought from 10 to 15 leagues, and especially the stone, or rather the rock, called Saycusca, or the 'Tired Stone,' because it never reached the structure. * * *. The stones obtained nearest were from Muyna, 5 leagues from Cuzco. It passes the power of imagination to conceive how so many and so great stones could be so accurately fitted together as scarcely to admit the insertion of the point of a knife between them. Many are, indeed, so well fitted that the joint can hardly be discovered. And all this is the more wonderful as they had no squares or levels to place on the stones and ascertain if they would fit together. How often must they have taken up and put down the stones to ascertain if the joints were perfect! Nor had they cranes, or pulleys, or other machinery whatever. * * *. But what is most marvelous of the edifice is the incredible size of the stones, and the astonishing labor of bringing them together and placing them."

Making allowances for XVI century superstition, one can agree almost entirely with the Inca writer. Yet many of these stones were undoubtedly quarried nearby. And we know that the Incas understood the manufacture of strong cables, for they built suspension



CARVED SEATS IN OUTCROPPINGS OF ROCK
NORTH OF SACSABUAMAN

bridges across many of the chasms of Central Peru. By the aid of these cables and of wooden rollers, it would have been entirely possible to have dragged very large stones for a considerable distance up inclined planes. Although they had no draft animals, llamas being accustomed only to carrying burdens, they had thousands of patient Quichua workmen at their disposal, whose combined efforts extended over long lines of cables, would have been amply sufficient to have moved even the largest of these great blocks. But when one considers the difficulty of fitting together two irregular boulders, both of them weighing 8 or 10 tons, one's admiration for the skill of these old builders knows no bounds.

The modern Peruvians are very fond of speculating as to the method which the Incas employed in making their stones fit so perfectly. One of the favorite stories is that the Incas knew of a plant whose juices rendered the surface of a block of stone so soft that by rubbing two blocks together for a few moments with this magical plant juice, the marvelous accuracy of stone fitting was easily accomplished!

Discussion and speculation will continue indefinitely, yet one must necessarily come to at least one conclusion. The Incas had an unlimited amount of labor at their disposal, and time was no object. Furthermore, they were, apparently, very fond of playing the game of stone-cutting.

In the rolling country north of Sacsahuaman are numbers of rocks and ledges that have been carved into fantastic seats, nooks, and crannies by a people who seem to have taken a delight in stone carving for an amusement. It is difficult to explain in any other way

the maze of niches and shelves, seats, and pedestals that are scattered about on every hand. Writers are accustomed to label as "Inca Thrones" every stone seat they find in the mountains of Peru. But here the ledges are carved so irregularly as almost to bewilder the imagination.

A mile away to the northeast is a great natural amphitheater where the Incas may have gathered together in throngs on the grassy slopes to watch games and religious festivals. It offers an attractive field for digging, as it seems to have been entirely overlooked.

Articles of value and interest to the antiquarian are also to be found among the possessions of almost every family in Cuzco, and there are one or two excellent collections that are gladly offered for the inspection of the foreign visitor. Altogether, Cuzco must be seen to be appreciated, but being seen it will amply repay the sacrifices of the intelligent traveler.

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EXHIBIT OF THE RESULTS OF PROF. GARSTANG'S WORK DURING 1908-09.—During the past summer Prof. Garstang exhibited in London his finds at Abydos during the preceding winter. Of greatest archæological interest is the set of sealings from Shunet-*ez-Zebit* (House of Dried Grapes), at Abydos, which has been called a fort, but seems rather to have been a palace of one of the earliest Egyptian kings. "These are all in Nile mud, and were, apparently, spherical, instead of having the form of the yellow covers found on the tops of wine jars. They are entirely new, none of them being duplicates or replicas of those of the same date recovered from the same site and from Hierakonpolis, higher up the Nile." These, when read, will probably be of value in reconstructing the history of the II and III dynasties. "One bears the name of Khasekhmui, 'the Rising of the Double Sceptre,' who succeeded Perabsen, the worshipper of Set; and another that of Niterkhet, Khasekhmui's successor. Both were probably sons of Queen Hapenmaat or Nemaathap."

There were also in the exhibit the contents of an undisturbed tomb of the XVIII dynasty, including a quantity of gold beads, earrings, and other jewels; a scribe's palette, some almost perfect alabaster vases, and two pottery vessels representing deformed human figures. With this burial were also a flat dish in blue glaze, decorated with a geometrical pattern in black, almost Cretan in type, and several hard stone vases, probably from an earlier age.

A cylinder seal of King Pepi and two bronze daggers of the XII dynasty can be definitely dated.

THE YEAR OF OUR ERA

IN THE VII century, both the Christians and the Mohammedans decided to honor their founders by dating all events from some notable year in their lives. The latter chose the year of Mohammed's flight from Medina, and the former chose what they supposed was the year of Christ's birth. Unhappily, they missed the mark by 2 years, and settled upon A. D. 1, when they should have taken B. C. 2.

The New Testament says distinctly that Jesus began to be "about 30 years of age in the 15th year of Tiberius Cæsar." Roman history tells us that Tiberius became Emperor on the death of Augustus, *viz.* on the 19th of August, A. D. 14. His 15th year, therefore, was completed on the 18th of August, A. D. 29. If, then, Christ was born in the autumn, it would be proper to say that the 15th year of Tiberius ended when "Jesus began to be about 30 years of age," and 30 years taken from A. D. 29 leaves B. C. 2 for the year of our Era. Forty-one days after Christ was born, his parents presented him in the Temple and offered the appointed sacrifice. Meantime the Wise Men came from the East with costly presents, sufficient in value to cover the expense of the trip to Egypt. After the departure of His parents Herod murdered the Bethlehem infants, and died himself at the thermal springs of Callirrhoe, in the valley of the Jordan. The context shows that Herod died in the year B. C. 1, about 4 months after the birth of Christ. The parents then returned to their home in Galilee by a circuitous route.

Thus far we have been guided by the New Testament. We shall now turn to contemporaneous history as found in the writings of Flavius Josephus, dated in the last half of the I century.

After Titus captured Jerusalem, Josephus resided permanently in Rome, and Vespasian made him "Custodian of the Sacred Books" or archives of the Romans. Hence we find among his writings many reliable records of Roman origin, such as the surrender of Jerusalem to Pompey in the 179th olympiad; the surrender to Herod and Sosius in the 185th olympiad, and the battle of Actium, in the 187th olympiad. But when Josephus wanted material relating to the life of Herod, he naturally turned to the 124 Books of Nicolas of Damascus, "the historiographer of Herod." Although those books have long since been destroyed, we are convinced that in matters of chronology Nicolas followed the system of Polybius, because Josephus, while following Nicolas' history, declared that Hyrcanus II began to reign "in the 3d year of the 177th olympiad,"—*Antq.* 14.1.2—when the true date (by the Varro system) was the 2nd year of the 178th olympiad. Writers have struggled to do away with this 3 years of difference. Some have

pretended that Tiberius' reign counted from A. D. 11 instead of A. D. 14, while others have claimed that *Antq.* 17.6.4 referred to the Eclipse of B. C. 4, instead of B. C. 1. But all in vain; in no other way can the 3 years of difference be accounted for without doing violence to the facts of history. Nothing was more natural than for Nicolas to follow Polybius, because Strabo wrote the sequel to Polybius' histories, and Josephus declares (*Antq.* 14.6.4) that both Nicolas and Strabo agree perfectly in their statement of facts. We should say in passing that the Varro system counted 753 years to the period between the founding of Rome and A. D. 1, while the system of Polybius figured the same period at 750 years. Both Cicero and Pliny followed Varro, but Livy followed a still different system.

The difference between periods is exactly 3 years; we must, therefore, add or subtract 3 years, as the case may be, in passing from one system to the other.

We have, then:

Hyrcanus II began to reign (<i>Antq.</i> 14.1.2) . . .	B. C. 70
Hyrcanus and Aristobulus	4 years
Hyrcanus II	24 years
To "Antigonus slain"	4 years
To end of Herod's reign	34 years
Add the shortage of Polybius	3 years
	<hr/> 69

It follows that Herod died in B. C. 1

In like manner, when Josephus states that Archelaus was banished in "the 37th year after the battle of Actium," we must remember that on the system of Polybius he pointed to A. D. 6; in other words, A. D. 9 by the Varro system, for that system is the standard of modern chronology. If now we deduct Archelaus' reign of 10 years from A. D. 9, we find that Herod died in B. C. 1.

Josephus also spoke of Philip having died "in the 20th year of Tiberius," which, by the system of Polybius was A. D. 33, but by the system of Varro it was A. D. 36; the 23rd or last year of Tiberius, who died March 26th, A. D. 37. By *Antq.* 18.5.3, we learn that Agrippa went to Rome in A. D. 36, "a year before the death of Tiberius, in order to treat of some affairs with the Emperor." What those affairs were is clearly shown by the outcome, for the new Emperor Caligula in A. D. 37 "put a diadem on his head and appointed him king of the tetarchy of Philip." It would be simply absurd to imagine that Agrippa, then 46 years of age and exceedingly hard pressed for money, allowed his uncle's principality to remain unclaimed from A. D. 33, to A. D. 36. On the contrary, we may be sure that Agrippa made straight tracks for Rome the very moment that Philip died. Now deduct Philip's reign of 37 years from A. D. 36, and again we find that Herod died in B. C. 1.

A strong side light is thrown on the year of Herod's death by the history of his 5 grandchildren: Herod, Agrippa, Aristobulus, Herodias, and Mariamne, the children of Aristobulus and Bernice. Herod betrothed the youngest to Antipater 2 years before his own death, and since Agrippa was born in B. C. 10, any date earlier than B. C. 1 for Herod's death was simply a physical impossibility. There is yet another bit of history of great importance. Shortly before Herod died, Matthias and others tore the golden eagle from the Temple gateway. Herod ordered their arrest, and then called a conference of the national leaders at Jericho to decide on the proper punishment. Very fortunately, it happened that on the day of the meeting there was a lunar Eclipse, and astronomers tell us that such a phenomenon took place January 9th, B. C. 1. After the conference Herod sank rapidly; still he was buoyed up with the hope that his messengers might soon return from Rome, with authority to act in the matter of Antipater. Upon their arrival he ordered Antipater put to death, and five days later died himself.

We are, therefore, fully supported in our conclusion, both by the New Testament and contemporaneous history, that Herod died in B. C. 1, and that B. C. 2 was the year of our Era.

It is interesting to note that Eusebius, bishop of Cæsarea A. D. 325, and called the "Father of Ecclesiastical History," maintained that the Christian Era began with the year B. C. 2.

W. S. AUCHINCLOSS.

Atlantic Highlands, N. J.



ORIGIN OF BABYLONIAN HUMAN-HEADED BULL.—In a recent article in the *Revue Archéologique*, M. H. Breuil inquires into the origin of the bovine type represented in the earliest Babylonian cylinders which show "an animal with the body, limbs, and horns of a bull, but with, apparently, a human face and beard." He contends that this animal—probably the primitive form of the man-faced bull of Assyria—is a bison, and in evidence points to wall-paintings of that animal by primitive man. "The beard, hanging from the chin merely, without moustache or whiskers, the forehead projecting and covered with hair, and especially the horns springing not from the upper part of the forehead, as in the domestic bull, but midway between the eye and the ear, seem to receive identical treatment in both cases. M. Breuil's theory that the Babylonian man-faced type, as shown in the representations of Ea-bani, is really due to an imperfect recollection by the artists of the archaic period of the bison * * * is, therefore, plausible."

SIGNIFICANCE OF THE JEWISH TEMPLE AT ELEPHANTINE

REFERENCE has been made in a former number¹ to the discovery of an inscription at Elephantine, in Upper Egypt, showing that in the year 405 B. C., there was a Jewish community in Egypt which, without being schismatic, considered itself entitled to a local temple. This was such an extraordinary discovery that it has given rise to a great amount of discussion as to its significance. The surprise arises from the fact that, according to the Mosaic law, there was to be but one temple, or central sanctuary, and that in Palestine. The Mosaic law contemplated the isolation of the Jews in Palestine and keeping them there until they were thoroughly possessed with the fundamental ideas of their religion. Their religious exercises consisted of prayer and sacrifices; and sacrifice was to be offered only in the Promised Land. The lawful sacrifices were of three sorts: (1) Customary sacrifices offered by private individuals on a rude, unadorned altar of earth or unhewn stone. These could be offered anywhere in Palestine, but not outside of the country. (2) Personal sacrifices offered with the assistance of the priest at the central sanctuary (Shiloh, Nob, and finally the temple at Jerusalem). (3) National sacrifices made at the central sanctuary by the priests.

Through this localization of sacrifice in the Promised Land, the grand object of unification was secured which has made the Jews a peculiar people, and given to their religious ideas ascendancy throughout the civilized world. So far as appears in the Old Testament, no one thought of sacrificing to God outside of the limits of the Promised Land. When Naaman wished to sacrifice to Israel's God, he only thought of doing it at Samaria through the legal fiction of taking with him some of the soil of Palestine on which to build his altar. The discovery, therefore, of evidence that there was a Jewish temple for sacrifice in Egypt is surprising in the extreme, and has opened the way for numerous theories concerning the workings of the Jewish mind at the time of the Captivity, and afterward during the dispersion of the tribes over the world. Indeed, the Mosaic law was so strict in its insistence on residence in Palestine, that provision was made that in keeping the Passover (Numbers, ix: 10) an Israelite who was away from the country could celebrate it a month later on his return.

Upon the significance of this discovery at Elephantine as well as upon so many other points, Mr. Harold M. Wiener has shed a flood of light, springing from his comprehensive knowledge both of the Jewish law and of the methods devised by legal minds for adjusting legal provisions to changing conditions of life. (See *Bibliotheca Sacra*, for October, 1909; pp. 724, 728.) As he shows, during the exile two questions confronted the Jews. (1) How was the ordinary

¹See RECORDS OF THE PAST, Vol. VII, 1908, p. 150.

local worship to be maintained or replaced? (2) "What will ye do in the day of solemn assembly, and in the day of the feast of the Lord?" (Hosea, ix:5.) Here was such a change of conditions that extreme measures must be resorted to if they were not to abandon the worship of the Lord altogether, for the maintenance of sacrifice in the Promised Land was no longer possible.

The adjustment made by the majority of the Jews is well known. They would not give up the worship of their God, neither would they transgress the Mosaic law limiting sacrifice to the Promised Land. They, therefore, established the Synagogue, which was a regular place for reading of the Scriptures and for prayer, thus spiritualizing the worship, and with a success that has commanded the admiration of the world, and made them a peculiar people even to our own time. But naturally, other methods of adjustment must have suggested themselves. One was that of making a virtue of necessity, and establishing a central sanctuary where sacrifices could be offered elsewhere. Such an attempt evidently was made at Elephantine, in Egypt. But, evidently, this did not satisfy the conscience of the faithful Jews, and so was eventually abandoned, and all adopted the synagogue.

Until, therefore, Palestine shall be again in possession of the Jews, and the temple restored, this race will continue to worship God only by prayer and good works, sorrowing meanwhile for the desecration of their holy place and their Promised Land. The inscription at Elephantine bears striking testimony to the severe struggles through which the nation passed in adjusting themselves to the radical changes of conditions brought about by the Babylonish captivity, and the subsequent occupation of their land by alien nations.

G. FREDERICK WRIGHT.

Oberlin, Ohio.



RELIEFS ON THE ARA PACIS.—Mr. H. Stuart Jones in a paper read before the British and American Archæological Societies at Rome stated that he regarded it as certain that none of the reliefs originally belonging to the Della Valle collection and now walled up in the garden front of the Villa Medici, belonged to the Ara Pacis. [Compare RECORDS OF THE PAST, Vol. V, 1906, p. 104.] He contends that no discoveries were made on the site of the altar till 1568, when several slabs and the relief of Tellus and the Auræ, now in Florence, were found. He believes that the figure usually identified as Augustus was the *rex sacrorum*. "He places the relief of Tellus on the east face of the altar, and the Lupercal with the fig tree on the north side of that entrance—an arrangement very suitable for the back of the monument, then, as now, approached from the Via Flaminia, the modern Corso."



AMAZON ON EAST GATE OF BOGHIAZ-KEUY

MOST RECENT HITTITE DISCOVERIES

THERE have been two new items of Hittite discovery made recently of which I present photographs taken this summer. The figure of the woman warrior is from the East gate of Boghaz-Keuy, and was discovered by the workmen after Professor Winckler and Macudy Bey left the mines in 1907. No one, apparently, has seen it or photographed it before, except the German architect Puchstein. He speaks of it as a king in an Egyptian dress, while it is evidently a woman. Even the peasants in the fields said, "Have you seen the woman on the stone there?" Professor Sayce writes, "Your discovery that the warrior on the East gate is a woman is important, since it settles the Amazon question." She holds a double headed axe, and has a sword by her side, and wears what seems like chain armour. She has bare feet instead of wearing the usual pointed Hittite boots.¹

The other picture is the first one that has been taken of a bas-relief at Ivriz in Southern Cappadocia. It is two miles farther up the gorge than the well known Ivriz figures, and is more primitive looking and

¹See RECORDS OF THE PAST, Vol. VII, 1908, pp. 267-274, *Hittites Near Marsovan, Asia Minor*.



REPLICA OF IVRIZ FIGURES

much worn and weathered, but it is otherwise exactly like them in subject and treatment. The recently discovered, like the long known one, has the god of harvest with his grapes and wheat ears, his robe curved at the bottom and his pointed cap and turned-up shoes, and in front of him the worshipping king. There are, however, no inscriptions to be seen on this later found bas-relief. There are the ruins of three Christian churches clinging to the rocky sides of the same gorge close beside the Hittite figures.

ISABEL FRANCES DODD.

Constantinople, Turkey.



HUMAN REMAINS IN THE CAVE OF JAMMAS, FRANCE.—“The appeal of the Society to the French Government to take means for the preservation of ancient remains mentioned in our notes [Vol. VIII part 2, p. 124], has been followed by a communication from the Minister of the Interior to the Society, informing it of the discovery of human remains in the cave of Jammes at Martiel (Aveyron), offering those remains to the Society, and suggesting that it send a delegate to Martiel to continue the excavations. Dr. Baudouin was the delegate selected, and he has furnished the Society with a full report of his proceedings.”

POSSIBLE PRE-GLACIAL HUMAN REMAINS ABOUT WASHINGTON, D. C.—A LETTER TO DR. C. C. ABBOTT

[Dr. C. C. Abbott, who has been studying for many years the human implements and bones found in the river gravels at Trenton, received in the early part of the summer a letter from Prof. N. H. Winchell which is of such general interest that we have asked the privilege of printing it. We are specially pleased to do so because we feel that the long and careful work of Dr. Abbott has not been duly appreciated. Dr. Holmes has long been studying the stone implements found in the tidewater region of the Atlantic coast, and has written extensively regarding them. His most comprehensive report on this subject in in the XV Annual Report of the Bureau of Ethnology, that for 1893-94, under the title of *Stone Implements of the Potomac-Chesapeake Tidewater Province*. This region is very rich in ancient human remains, having been a favorite fishing and hunting ground from earliest times. The age of the remains varies from the most recent Indian quarries and workshops to the ancient remains found in the river gravels of late glacial and post-glacial time. Since the age of these older remains must be determined by the geologist rather than the ethnologist, the suggestions of a geologist of the high standing of Prof. N. H. Winchell are very valuable and call attention to a number of important points on which Doctors Abbott and Holmes differ, the former being convinced of the occurrence of glacial man, while the latter considers the oldest remains found to be of comparatively recent date. F. B. W.]

I HAVE been reading the paper by Holmes on the distribution of stone artifacts in the tidewater area of the Piedmont plateau, somewhat attentively, and although I have not had opportunity to examine the facts in the field, it has occurred to me to suggest to you some correlations which, if found correct by further field study, may aid to interpret not only his facts, but also some that you have reported. These ideas are briefly expressed as follows:

1. His so-called "boulder quarries" may be not wholly artificial, but natural, at least pre-glacial.
2. They were filled by the operations of the glacial epoch, with the material that was available, some of it being aboriginal chippings and rude artifacts, but mainly by natural local drift.
3. They thus can be correlated with the Trenton gravel and its rude artifacts, both as to date and as to method of accumulation.

4. These artifacts, and the culture that they indicate, are very different from and apparently older than the steatite working which Holmes also describes.

These ideas are based on a few facts given by Dr. Holmes, as well as on some general considerations which involve broader views of the antiquity of man in America which are not taken into account by him, *viz*:

1. There would be nothing more natural than that all about the outcropping edge of the Potomac conglomerate there should be more or less vertical and even "under cut" small cliffs in pre-glacial time, which would be more or less buried by the transported material of the glacial epoch.

2. The area studied by Dr. Holmes is essentially outside the glacial limit, but there is no doubt that all superficial materials were more or less transported, at least for short distances, by the abundant waters that washed the lower lands, outside of the ice-limit.

3. Where such materials were swept along the valleys as gravels they necessarily involved any pre-glacial human remains and implements that had been deposited in their way.

4. When they were not swept along with waters bearing drift gravel they would necessarily be brought into such sheltered depressions as these quarries, and would also partake largely of the debris of the rock formations of the region.

5. If they be actual post-glacial human works, why have there not been found some artifacts that show characters different from the palæoliths of the Trenton gravels? Dr. Holmes says it is because the quarries are on a hillside, and that no sites of suitable habitats could have existed, such as to cause the losing of neolithic articles in the vicinity. But that is to me hardly sufficient. In such an area of quarrying as mapped by him there should be found, if these works are as recent as the steatite quarries, some trace of higher culture, like the traces of higher culture found in the ancient copper mines of Lake Superior, and in other post-glacial workings, where equally there is no village debris.

6. If they be pre-glacial human works there could not be found relics of neolithic culture in these quarries—as appears to be the fact from Dr. Holmes' report.

7. These two important considerations both point, individually and unitedly, to the idea that the boulder quarries are pre-glacial.

8. As nearly as I can gather from Dr. Holmes' report and from his illustrations, the soapstone quarries were worked with implements of "a distinct class (p. 149) the sites of their manufacture not having been discovered." Although "barely beyond the city limits" of Washington, the Rose Hill quarry on "Connecticut Avenue extended," well within the environment of the boulder quarries, "one and a half miles from each of the great quartz boulder quarries," was worked by implements that were so unique as to form a class of

their own—not by implements of quartz nor of quartzite from the boulder quarries, but of a dark gray igneous rock resembling diabase, or of vein quartz obtained on the spot. If the boulder quarries were cotemporary with the soapstone quarries the query necessarily arises why did not the workmen use implements made from the boulders of the boulder quarries? It could not be on account of the necessity of carrying them to the soapstone quarries, since one of the “classes” of these implements, according to Dr. Holmes, “were made for the purpose on distant sites.” It is more probable that the soapstone workers knew nothing of the boulder quarries. As a fact the latter have but recently been discovered by the whites.

It seems to me that there is much reason to separate the boulder quarries from the soapstone quarries in point of time, and hence in point of race that did the work. If it should prove true that they can be thus separated, I believe we should find about Washington one of the most remarkable fields for the demonstration of the existence of pre-glacial man in America.

9. Again, any geologist examining the photographic reproductions given by Dr. Holmes—plates 8, 9, 10, and 11, while recognizing the existence of artificially broken boulders, would also see evidence of greater age than is expressed by the photographic reproductions of the soapstone quarries seen in plates 79, 81, 85, and 91. This is recognized by Dr. Holmes himself. It seems to be necessary to judge approximately *how much older*, as well as to consider whether the difference in aspect can be accounted for by invoking local surroundings. If one assumes at once as a prerequisite condition, that the soapstone and the boulder quarries are of coeval dates, his mind will naturally dwell on all considerations that tend to confirm that assumption, as has been done by Dr. Holmes. In doing so, however, he is likely to overlook important distinctions that look away from that assumption, as seems to have been done by Dr. Holmes. For instance, in all the boulder quarry illustrations mentioned the boulders and surrounding earth are compacted in a manner that requires greater age than mere pre-historic (or even historic) work seen in the soapstone quarries. The stones also lie with a prevailing slope all in one direction, and most remarkable of all the stones are coated with a scale, a sort of *glacial patina*, which cements them together in a firm mass such as is characteristic of boulders and gravel of the glacial epoch. Usually, and so far as I know always, such scale is calcareous and will effervesce in HCL. I have never known such scale to form on recent artifacts, but it is almost invariably present in old gravels and boulder masses of the drift age when freshly exposed. All these significant glacial features have been overlooked by Dr. Holmes in his discussion of the correlation of these quarries. Now, in the illustrations of the soapstone quarries no such features are seen. They may exist in the overlying debris covering the general country at the soapstone quarries, but I think they would not be found in the debris filling the

artificial soapstone pits. Dr. Holmes' photographs of the soapstone pits do not well show the nature of the materials filling them. Mr. Dinwiddie was instructed to thoroughly remove it, and its structure seems not to have been compared with the structure of the debris filling the pits of the boulder quarries.

10. The mingling of these remains, pre-glacial and post-glacial, seems to have operated as at Little Falls, Minnesota, to cause confusion in assigning them to their proper ages. The tendency has been to refer them all to the historic Indian, because the Indian is a known datum, and he was known to have made use of both the palæolith and the neolith. The date of the palæolith was, therefore, uncertain and would have remained unknown, except for careful examination in the gravels, such as those at Trenton, Little Falls, and now, apparently in the glacial debris of these boulder quarries.

11. The results of Dr. Holmes' excellent work seem, therefore, in spite of the conclusions of his seemingly careful and candid research, to confirm the conclusions which you reached so many years ago as to the palæoliths of the Trenton gravels—and on this you are to be congratulated and should be honored by your fellow men.

N. H. WINCHELL.

St. Paul, Minn.



STATUE OF MEN-KAU-RA.—One of the additions to the Museum at Cairo during 1908 was an alabaster statue of Men-kau-Ra, or Mycerinus, the fifth king of the IV dynasty, found at Gizeh by Dr. Reisner. It is nearly twice life size; the head is beautifully modeled with a wide, rather flat nose and large upper lip. On the same spot Dr. Reisner found "some slabs of green schist bearing in high relief an upright figure of the same king, between the goddess Hathor and a deity who is evidently the chief divinity of a nome, and has by her side a standard with emblems. It is said that Dr. Reisner has found several examples of that tablet, and as in the two exhibited in the Museum the emblems on the standards differ, it is a fair inference that one was made for every nome in Egypt. If so, it is hoped that they will be speedily published, for hardly anything would do more to fill in the gaps in our knowledge alike of the early history of Egypt and the Egyptian religion than an accurate knowledge of the nome signs. It is also somewhat disconcerting to those who have pronounced Hathor a foreign importation to find her appearing so early in Egyptian history."

ANCIENT ORIENTAL SEALS

STUDENTS of art and archæology must appreciate the bringing together, through the enlightened efforts and generosity of such men as Mr. J. Pierpont Morgan, of valuable objects of antiquity and the throwing of them open to the world in scholarly publications such as that from the hands of Dr. William Hayes Ward, the American authority on seals. The volume entitled *Cylinders and Other Ancient Oriental Seals in the Library of J. Pierpont Morgan* is valuable not only for the superb manner in which the matter has been treated and presented by the author, but also for the excellent workmanship of the designer and printer, Mr. Frederic Fairchild Sherman.

The volume contains heliograph reproductions of impressions of nearly 300 representative examples selected from a large collection of ancient seals in the library of Mr. Morgan. Some are remarkable creations of an artistic character, exhibiting a skill on the part of the lapidary equal to that manifested in any period. Others, while more naïve in character and workmanship, are important in tracing the development of motives and are valuable in throwing light upon investigations into the early mythology of the Orient.

The seals which were in use from the earliest known period in history are made of shell taken from the compact core of the conch, of green and black serpentine, of lapislazuli, cornelian, agate, sapphire, jade, blue chalcedony, etc. The ancient lapidary in metamorphosing the bits of material into gems must have used delicate tools. A hole was drilled through the cylinder for the purpose of inserting an instrument which enabled the scribe to roll the seal over the soft clay or for inserting a cord so that it could be attached to the body.

The purpose of the seal in ancient times was exactly the same as it is to-day. As Dr. Ward says, it was to designate property or more particularly for the identification of the individual. That is, the seal impression was a substitute for a signature. This arose from the fact that few could affix a signature to a document, as the ability to write was confined almost entirely to professional scribes. In consequence its use for authenticating writings caused the highest importance to be attached to it. We learn from the classical writers that every man of standing in a Babylonian community had his seal. There are several royal cylinders in the Morgan collection of important kings of the third millennium B. C., among which may be mentioned those of the famous Gudea and Ibi-Sin.

When the individual did not possess a seal he used a substitute. As early as the time of Abraham the cord which hung to the garment

of a Babylonian, called *sisiktu*, was used as a substitute. A portion of it was pressed into the soft clay. Alongside of the impression, as was done in the case of a seal, was written: "His *sisiktu* instead of his seal." The *sisiktu* is probably to be identified with the *sisith* worn by orthodox Hebrews at the present time. In the Old Testament it is referred to as the fringe or cord placed in the hem of the garment, which was to serve as a reminder of the law. (Numbers, xv: 38-39.)

Another substitute for the seal commonly used was the thumbnail of the individual, which was pressed into the soft clay, and alongside of the impression was written: "Thumbnail instead of his seal." This recalls the old English custom of the obligor embedding his teeth in the wax on a document instead of using a seal.

By his researches, which cover a period of many years, Dr. Ward has been able to determine the different ages represented in the Morgan seal collection. He has classified the seals as Babylonian, Assyrian, Cypriote, Syro-Hittite, Sabæan, Persian, and Sassanian. In addition he discusses several scaraboids and Assyrian cone seals.

The art of the very earliest seals from Babylonia is comparatively crude. The human figures are either nude or clothed with short skirts. The faces have an extremely prominent nose, resembling the beak of a bird, and large round eyes, quite similar to the faces depicted in the early Sumerian reliefs. The more common designs found, belonging to the period of the fourth millennium B. C., contain seated deities drinking through a tube from a large vase on the ground. Other designs show eagles seizing animals, such as the bull and lion. But the favorite themes of the early seals are taken from the great national epic, or collection of myths, known as the Gilgamesh epic. The scene used is usually that of the contest of the hero and his friend Enkidu (which name is usually read Ea-bani) with wild animals.

From Sargon's time (i. e., about 2800 B. C.) the name of the owner was engraved on the seal, as is customary in the present era. In the case of a ruler his titles were usually added; in that of an individual the name of the deity he worshiped was mentioned. In the Cassite period, that is, during the second millennium B. C., the large cylinder used in the earlier period was again introduced. In this age in many instances the seals are nearly covered with lengthy prayers to the gods. The encased cross which Dr. Ward holds was the emblem of the sun, and perhaps the origin of the swastika was introduced in this period. In the late Babylonian period of the first millennium the emblems of gods on the boundary stones were imitated, before whom the owner of the seal was represented standing in the attitude of worship. In the Persian period the designs were more and more simplified and conventionalized, this change being due to influences from Persia.

The seals coming from the northern empire, belonging to the second millennium B. C., are large and seldom have inscriptions. The design shows a god standing with a bow in his hand, before whom

is the worshiper; or the deity is seated before a table with an attendant waving a fan behind him. In this period the representation of the Sacred Tree, called by some "the tree of life," first makes its appearance. This became the favorite design in the later Assyrian period. The winged figures, like the Hebrew cherubim or seraphim, appear as guardians as well as givers of the fruit of "the tree of life," which Dr. Ward says corresponds to the tree of life in the story of the Garden of Eden. If what the author maintains is correct concerning the introduction of the motive of the sacred tree into Babylonia, it is not improbable that it was borrowed from the Western Semites coming from Syria and Palestine, instead of its being imported by Israel from Babylonia, according to the prevailing theory of certain Semitists.

In the later Assyrian period another characteristic design is found, namely, the conflict between the spirits of order and disorder. Dr. Ward thinks the design is a composite, based on the early motive of the conflict of Gilgamesh with the wild beasts, and the fight of Bêl and the Dragon, or better, Marduk with Tiamat, well known in the Babylonian Creation story. Marduk was the god of order, whereas Tiamat was the deity representing confusion and chaos. In the Morgan collection there is an especially remarkable specimen of this scene. It is the most complete representation of the fight between Bêl and the Dragon that is known. It was first identified by the famous George Smith of the British Museum, and has frequently been used in showing that the Biblical representation of Satan as a serpent in Eden was not unknown to the Babylonians.

As early as 600 B. C. the cylinder seal began to be replaced by the so-called cone seal, which became more and more popular. In Egypt the scarab had replaced the cylinder seal, which was due to the employment of papyrus as the writing material. The scarab in time was reduced to the scaraboid, which is a simple oval without the joints of the beetle. The author suggests that this may be the origin of the cone seal, although the latter is much larger and has a more convenient form for attachment.

Dr. Ward's discussion of the seals is especially valuable, as he endeavors to trace the development of the motives and to ascertain their origin. For instance, the winged disk which represents Ashur, the chief deity of the Assyrians, he says came into that land from the West, it being a modification of the Egyptian representation of the Sun god Ra. Dr. Ward holds that the influence upon Babylonian art was greater from the Syro-Hittite region than from Egypt, or in other words, it came from the countries between the Euphrates and Syria. This is the land controlled in the early millenniums by the Amorites, but ruled over with more or less authority by the Hittites from 2000 to 700 B. C. Dr. Ward acknowledges the difficulties in disentangling the elements that entered into the art which he calls Syro-Hittite, but he inclines to the belief that it was profoundly influenced by the culture from the Ionian seacoasts of the earliest and later Mycenæan periods, and probably also by Egypt through the Phœnicians.

The cylinders from the Syro-Hittite region, Dr. Ward shows, usually contain the figures of three deities, two being male and one female. One of the gods, Martu or Amurru, the author says, was introduced into the Babylonian pantheon as the god of the West. The other, namely, Adad, became the Babylonian storm deity. Amurru appears as a dignified, stately god, wearing a long robe, and without weapons. Adad wears a short robe which is scarcely more than a loin cloth, and is dressed for war. The goddess, which is Ashtoreth of the Old Testament, corresponding to the Babylonian Ishtar, is either nude or represented as drawing aside her garment. Her symbolic animal is the bull or cow, upon which she sometimes stands. All three deities appear in a single cylinder in the Morgan collection, which is regarded as a remarkable specimen of this ancient art.

One of the far reaching conclusions of Dr. Ward's investigations is that the monotheistic worship of Jahweh, the god of Israel, originated in the worship of this Western deity, Adad. This is based upon the study of the art in which that deity appears. The earliest character of the worship of Jahweh, as found in the Hebrew literature, shows that he was a god of the mountains. The stories of Sinai, Horeb, Moriah, Carmel, etc., indicate this. He was also a god of storms, thunder, lightning, and war, as he is so frequently portrayed in the Psalms and Prophecies, and he was worshiped under the form of a bull. The calf that Aaron made was a symbol of the people's worship. The calves that were set up at Bethel and Dan by Jereboam represented the worship of Jahweh in the Northern Kingdom.

Dr. Ward finds on the Syro-Hittite seals of the Morgan and other collections which depict the god Adad (known also as Ramman in Babylonia, Teshup among the Hittites, and Reseph among the Syrians), that he is such a deity. He finds all the characteristics of Jahweh united in this god, whose habitat is in Syria-Palestine and whose worship goes back to the earliest period of history. He is usually represented with the forked thunderbolt, sometimes with a club or axe. As a god of thunder he leads the bellowing bull by a cord attached to a ring in his nose. He is frequently represented as walking or standing on the tops of mountains. In the language of Micah concerning Jahweh, he "treads on the high places of the earth."

The other Western deity, Amurru, was the great solar god of the Amorites, a mighty people, who dominated over Syria-Palestine in the third and earlier millenniums B. C. Dr. Ward's theory, based solely on the study of ancient art, that this deity was introduced into the religion of Babylonia, is a very important result of his investigations. It is substantiated in a remarkable manner by the inscriptions of Babylonia, for the deity Amurru played an important rôle in the early Babylonian religion. In fact the chief deities of the Semitic Babylonians, which are solar gods, have their origin in this solar deity of the Amorites. This fact, considered in connection with many

others, will doubtless eventually prompt scholars to look to the land of the Amorites, that is, Syria-Palestine, as the original home of the Semitic Babylonian culture, instead of maintaining that the culture of the Semites in Palestine, including the Hebraic, was borrowed from Babylonia.

It is to be hoped that the rest of this important collection of ancient seals, perhaps the largest in any private collection, will be published. In this way the comparative prevalence of design can be ascertained, which will be highly instructive in showing the popularity of the different worships, as well as furnish valuable material for the student in linguistics, in archæology and in art.

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BOOK REVIEWS

METHODS AND RESULTS IN MEXICAN RESEARCH¹

THE above summary of the results of Mexican research, like many other valuable contributions to the subject, has been published at the expense of the Duke of Loubat and distributed freely to public libraries in all parts of the world. The range of authors and facts brought under review is very broad (indeed nothing seems to have escaped the author's eye), while his inferences are very cautiously made, as will be seen by his concluding *Historical Remarks* (pp. 124-127).

It is too early to write a history of Mexico. The evidence of the picture manuscripts and Spanish authors has by no means as yet been entirely sifted in a critical manner, and archæology has not supplied us yet with anything like sufficient data; finally, a number of important chronological and synchronological problems remain to be solved.

"Nothing is more misleading than the old schematized division of Mexican history into three successive periods: Toltec, Chichimec, and Aztec. Reality is seldom so simple.

"The origin of the great migration current which ran through the whole American continent from the North to the South will doubtless never be finally ascertained, as also the alleged chronological and geographical coincidences between the various migrations. Connections between the Mexicans and the Mound-builders are as yet in the realm of unsupported conjecture. The best thing under the circumstances is to confine ourselves to the study of the present occupants of the land. There is no doubt that the Mexicans were immi-

¹*Methods and Results in Mexican Research*, by Dr. Walter Lehmann, Assistant Keeper of the Royal Ethnographical Museum at Berlin; originally published in the *Archiv für Anthropologie*, Vol. VI, 1907, pp. 113-168. Translated from the German with kind permission of the editors of the *Archiv*, by Seymour de Ricci, Paris, June, 1909.

grants and well aware of it. It is possible that they came from the North, but it has never been conclusively demonstrated. On the contrary the close connection between Mexican civilization and the other civilizations of Central America is perfectly established.

"The Toltec problem is a difficult one. Even if we omit all the mythological matter concerning not only the Toltecs, but also the god Quetzalcouatl, there remains an important substratum of historical fact which we cannot dismiss at a word as Brinton was inclined to do. The very difficulty of the question ought not to deter us from its study, as it may give the key to a correct knowledge of the whole Mexican and Central American world.

"The Toltecs, as expressly stated by Sahagun, were a Nahuatl tribe speaking therefore a language closely connected with the Mexican. They belonged to an early stage of civilization, they spread their influence far and wide, and their memory was preserved by a number of tribes who spoke a different language and had their own civilization.

"To the Toltecs is generally ascribed the invention of hieroglyphics and the calendar. The Mexicans, Tzapotecs, and Mayas had both, but in various forms and stages of development. Two explanations are possible: either the Mexicans and Mayas influenced one another through the intervening Tzapotecs or else the three nations learnt writing and the calendar from a third and older nation. And who could the latter be if not the Toltecs?

"Mexican legends tell us that the 'wise men' (i. e. the mythical Toltecs), parted from the other tribes and went forth towards the East. After these are mentioned the first historical Toltecs, the inhabitants of Tollan, Tollanzinco, and Xicotitlan. The expression *yâque*, 'they went forth,' is also found in the Quiche legends, which call these the 'forth goers,' *yaqui yinak*, and state that Quetzalcouatl was their god. This, evidently, refers to Toltecs, who went toward the East in pre-historic times.

"Now, in Landa's narrative, the Maya hero, Cuculean, comes from the West. Further, a Toltec influence is clearly to be observed in the buildings of Mayapan and Chichenitza, especially in the round towers of the Quetzalcouatl sanctuaries and in the typical snake pillars which are also found at Tollan (Tula).

"Quetzalcouatl appears in wall paintings at Mitla, the ruins, according to Torquemada, of temples built by the Toltecs, under the name of *Nacxit* (Mexican *Nacxitl*, *nauicxitl*) he plays an important part in the Cakchiquel myths.

"The inhabitants of Cholula, where Quetzalcouatl was in particular honor, and where great ruins still remain, were said to be descendants of the Toltecs, to whom Torquemada also ascribes the majestic pyramids of Teotihuacan. Various ancient records expressly attest the wide dispersion of Toltec influence both on the Atlantic and the Pacific coast.

"The birthplace of the Toltecs, Huei-Tlapallan (or Huehue-Tlapallan), or Xalac ('on the shore'), is doubtless to be identified

with the Tlapallan of more recent narratives (i. e., the Tabasco district), and is never mentioned without the emphatic epithets of 'great' or 'ancient.'

"The list of early kings of Colhuacan, from whom, according to Chimalpain, was descended the royal Mexican dynasty, is identical with the list of the Tollan rulers. But we must not forget that besides the historical Colhuacan there was a mythical place of the same name (Colhuacan-Mexico), and that all the Nahua nations, including the Mexicans, tried to make out some connection or other with alleged Toltec ancestors. Be it as it may, the Toltec problem promises to enter a new stage, and we may now look hopefully forward to a final solution. The question is of high importance and the old fanciful ideas we had of this nation will have to give way before the results of scientific research.

"The answer to this great problem will enable us to test the value of the various migration legends. But, alas, the history of Mexico before the Spanish conquest will always remain confined to a short lapse of years; the hieroglyphic documents only speak of centuries, and we have before us a civilization the evolution of which may have occupied thousands of years."



FERNANDO CORTES AND THE CONQUEST OF MEXICO¹

FERNANDO CORTES and the Conquest of Mexico, is the title of the new volume of Messrs. G. P. Putnam's Sons series, *Heroes of the Nations*. Mr. MacNutt gives here the story of the life and military accomplishments of this man whom he considers as "easily the greatest" of the men who extended Spain's power abroad. After tracing the vicissitudes of this soldier and statesman, the author closes with an estimate of his character, which should be judged by the standards of his time and in the light of the conditions which prevailed in Europe in the XVI century. His letters to Charles V describing his military operations in the New World have been compared with Cæsar's *Commentaries*, "without suffering by the comparison."

"Gaul, when overrun and conquered by Julius Cæsar, possessed no such political organization as did the Aztec Empire when it was subdued by Cortes. There were neither cities comparable with Tlascala and Cholula, nor was there any central military organization corresponding to the triple alliance of Tenochtitlan, Texcoco, and Tlacopan, with their vast dependencies, from which countless hordes of warriors were drawn. On the other hand, while Cæsar led the flower of the Roman legions, Cortes captained a mixed band of a few hundred men, ill-trained, undisciplined, indifferent to schemes of conquest and bent only on their own individual aggrandizement, of whom

¹*Fernando Cortes and the Conquest of Mexico*, by Francis Augustus MacNutt; 12mo, pp. xxiv, 475; 20 illustrations and maps. \$1 35 net. New York: G. P. Putnam's Sons, 1909.

many were also disaffected towards the commanders and required alternate cajoling and threats to hold them in hand."

Cortes, in the opinion of the Mr. MacNutt, was sincere in his piety. He believed that he was leading a holy crusade to win lost souls to salvation. He says that without the motive of overthrowing idolatry and securing the salvation of so many souls, his war would be unjust and obnoxious. In spite of the frequent accusation of aspiring to independent sovereignty, Mr. MacNutt holds that "the Emperor had no more faithful subject than Cortes, in whom the dual mainsprings of action were religion and loyalty." Cruel he certainly was, but "the iron policy which used massacres, torture, and slavery for its instruments of conquest did not revolt the Indians, since it presented no contrast to the usage common among themselves in time of war; *vae victis* comprised the ethics of native kings who, in addition to wars for aggrandizement of territory and increase of glory, also waged them solely to obtain victims for the sacrificial altars of their gods. This ghastly levy ceased with the introduction of Malintzin's religion, and he brought no hitherto unfamiliar horror as a substitute for it."

He had supreme genius for leadership. "With inadequate means, he undertook and successfully accomplished one of the greatest military enterprises of which we have knowledge."



SOCIETY AND POLITICS IN ANCIENT ROME¹

IN THE Prefatory Note to *Society and Politics in Ancient Rome*, Professor Abbott thus states his purpose in publishing the present volume of essays and sketches: "The social, political, and literary questions which are discussed in them—the participation of women in public life, municipal politics, the tendencies of parliamentary government, realism in fiction, the influence of the theater and like matters—were not peculiar to Roman civilization, but they are of all time, and confront all civilized peoples. We are grappling with them to-day, and to see what form they took at another time, and what solutions of them or attempts at solving them another highly civilized people made may not be without profit or interest to us. The common inheritance of difficult problems which we thus share with the Romans has led the writer to compare ancient and modern conditions in some detail, or to contrast them, as the case may be. In fact, most of the papers are in some measure comparative studies of certain phases of life at Rome and in our own day. It is hoped, therefore, that the book will be of some interest to the general reader as well as to the special student of Roman life and literature."

This hope, it seems to us, he has fulfilled, for the range of subjects touched upon is wide, and the author has treated them in an interesting manner. His comparisons are suggestive.

¹ *Society and Politics in Ancient Rome*. Essays and Sketches by Frank Frost Abbott, Professor of Classics in Princeton University; 12 mo, pp. x, 267. \$1.25 net. New York: Charles Scribner's Sons. 1909.

EDITORIAL NOTES

PREPARATIONS FOR MORE EXCAVATIONS AT POMPEII AND HERCULANEUM.—“The new Archæological Law having been passed by the Italian Chamber and the Senate, preparations are being made for valuing the property round Pompeii and Herculaneum with a view to excavations.”

TEMPLE OF THOTHMES III AT ABYDOS.—At Abydos Mr. Ayrton, of the Egypt Exploration Fund, has excavated a temple of Thothmes III in a line between the Temple of Ramesses and what is known as the great Temenos of Osiris. Above the temple are the remains of a Coptic church.

ORIGIN OF DENHOLES.—Rev. J. W. Hayes, in the *Journal* of the Royal Anthropological Institute, discusses the evidence relating to the origin and uses of denholes and other chalk excavations in England, concluding that they never had a higher claim than that of chalk pits or quarries. Denholes of the chambered type were excavated for the material in which they occur.

ROMAN VILLA IN KENT.—“Near the chalk quarries at Northfleet, Kent, the foundations of a Roman villa have been discovered. Careful excavations are being made under the direction of Mr. W. H. Steadman, a local antiquary, and a number of red tile pavements, many fragments of pottery, and a Roman well, 12 ft. deep, have been found.”

RESIGNATION OF PROF. HULSEN.—Prof. Hülsen has resigned his position with the German Archæological Institute at Rome. The authorities at Berlin have, of late, been reducing the allowances of the Institute, thus, apparently, implying that the work at Rome is played out. Prof. Hülsen intends to settle at Florence, where he will work at the prints and drawings in the Florence museums illustrating Roman antiquities.

DEDICATION OF TEMPLE IN THE GROVE OF FURRINA.—Prof. Paul Gauckler reports that he has found “the fine dedication of the temple laid bare in the Grove of Furrina on the Janiculum. [See RECORDS OF THE PAST, Vol. VIII, May-June, 1909, p. 173.] As was fully expected by him, it is to Jupiter Heliopolitanus (*Jovi optimo maximo Heliopolitano Augusto*), otherwise the Baal of Heliopolis.”

NEOLITHIC LAKES IN ESSEX, ENGLAND.—In the *Transactions* of the Essex Archæological Society, Mr. John French has an article on the great antiquity of the lakes at Leigh's Priory. He attributes their origin to the Neolithic Lake Dwellers. The priory was built on the dry bed of the last of the 13 lakes. Alongside the dam at the end of the first lake a Roman road crosses the valley, and it is clear that the dam is older than the road. Excavations, he believes, would strengthen the evidence of antiquity.

HOMO HEIDELBERGENSIS.—“Dr. L. Laloy in *L'Anthropologie* concurs with Herr Otto Schoetensack of Leipsic that the fossil lower jaw of *Homo Heidelbergensis* is the most ancient relic of humanity yet discovered, being incontestably Pliocene. It is remarkable for its massive appearance, and the complete absence of a chin. He considers that it presents more primitive characters in some respects than those of the anthropoids, and that it is only superior to them in its projection and the form of the dental curve.”

PUNCH-MARKED COINS FROM AFGHANISTAN.—“The Amir of Afghanistan recently sent some punch-marked coins found within his territory to India for examination by experts. They have several symbols not to be found in the authoritative text-book, and some of them bear Brahmo or Kharosthi characters of the II and III century before our era. Punch-marked coins are the oldest known type of Indian coinage, but hitherto none has been discovered beyond Peshawar.”

HEBREW COIN FOUND IN NATAL, SOUTH AFRICA.—A Hebrew coin of the reign of Simon Maccabæus, bearing the inscription “Fourth Year of the Deliverance of Zion,” which is 139 B. C., is reported in *Anthropos* as having been dug up in the Trappist Monastery of Marianhill, Natal, South Africa. The coin presents no peculiar points, but is of special interest because found in Natal. It is to be hoped that further discoveries may be made throwing light on the question as to how and when this coin was carried so far from its native land.

BUSHMAN GRAVES.—Brother Otto, of Marianhill, reports that he has been informed by “an old Mosuto” that it is the Bushman custom to scoop out a niche at the foot of a rock, in which the corpse is laid and then wall it in with a barrier of stones. Another tribe, the Basuto, after digging a grave in the usual manner, make a recess on one side at the bottom, lay the corpse in this and build it in with stones. Among the Bantu tribes it is a common custom to dig a recess in one side of the grave in which the body is laid so that in filling the grave the dirt is not thrown directly on the body.

ANCIENT SEWING OUTFIT.—“An interesting find is reported to have been made by Fräulein Professor Mestorf, Director of the Museum Schleswiger Allertümer, at Kiel. In the grave of a Germanic woman, dating from the pre-Christian era, was found a stone box containing a set of sewing utensils, a pair of scissors of considerable weight, a horn knife with an iron blade, a stiletto, and several thorns, which were used as needles. There was also a stone resembling the so-called ‘Genidelstein,’ which was still in use as a flat-iron as late as the XVI and XVII centuries.”

TREPANNING AMONG EGYPTIAN MUMMIES.—M. Maspero comments on the fact that the “mummies of the Ramesside kings, now in the Cairo Museum, have nearly all been subjected to an operation like trepanning either at the moment of, or shortly after death, as is shown by the appearance of a large triangular hole in the top of the skull. According to him, this was done for a religious, or more precisely, a magical reason, as it was considered that death from disease was caused by the intrusion of an evil spirit, who, after killing his victim, remained imprisoned in the top of the skull, and could not escape unless a way were made for him.” So far no mummies of private individuals show evidence of such treatment.

DR. SPOONER AT TAKHT-I-BAHI, INDIA.—Among the interesting discoveries of Dr. Spooner at Takht-i-Bahi in the Peshawar Valley, “the most important was that of a stone, pierced through the center, which had evidently been the pediment of a stupa. The stone is a peculiar greenish one and on the 4 sides are scenes from the life of Buddha. So far as Dr. Spooner is aware, a more perfect specimen of this cycle of the Mahaparanirvana does not exist. Among other finds near Peshawar, is that of a headless figure of a goddess with 4 arms. This number of arms is unusual in Gandhara art. The upper pair of arms is lost, but the lower ones hold a spear and well defined wheel, respectively. The drapery is described as typically Greek.”

ANTIQUITY OF THE LOOM.—In an interesting article in the *Reliquary* on *The Loom During the Bronze Age in Britain*, Henry Laver, F. S. A., reminds us that man early had clothing other than skins, and consequently weaving of some kind must have been carried on, soon leading to the use of a loom in some form. He cites the case of a potsherd, recently discovered in South Essex, bearing marks of cloth on the interior. The style of ornamentation and the material used identifies it at once as Bronze Age pottery. It is supposed that the potter, having no wheel, made a mold of the shape of the interior of the vase he was making from some combustible material and then plastered the clay over it. Upon baking, the interior mould burned away, leaving the hollow vase as desired. The mold was held together by a piece of cloth while the clay was applied, hence the marks of woven work on the interior.

REPORT OF THE ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS AND CONSTRUCTIONS OF SCOTLAND.—“The first report of the Royal Commission on the Ancient and Historical Monuments and Constructions of Scotland has been issued in the form of a Blue-book, and consists of an inventory of monuments and constructions in Berwickshire. It is noted that there are no recognized Roman constructions in Berwickshire. Some 260 objects are recorded, 70 of which have not ever been described before; these include the 4 monastic establishments of the Abbey of Dryburgh, Priory of Coldingham, Convent of Cistercian Nuns at Eccles (a mere fragment) and the Priory of St. Bothan at Abbey St. Bathans. Thirlestane Castle, near Lauder, is mentioned as the most remarkable historical dwelling in the county, while other castellated and domestic remains are noted besides pre-historic remains.”

DISCOVERIES AT OSTIA.—“A fine statue of Ceres was discovered in April by Prof. Vaglieri in the course of the excavations which he is conducting at Ostia. Another interesting discovery is reported from Ancona, where some workmen have unearthed a Greco-Roman tomb containing a skeleton, a cup of white glass, two metal strigils [instruments for scraping the skin at the bath], and several other objects. ‘Doric Ancon’ was founded, it will be remembered, by a colony of Greeks from Syracuse—a fact to which Juvenal alludes in a well-known line.”

Later, in May, some valuable frescoes are reported to have been found at Ostia. They are in the remains of a large villa, containing a dining room “decorated with frescoes representing a figure of Silenus giving a drink to a thirsty man, an Ariadne, and a winged Victory about to strike a vanquished woman, for whom a third female figure is begging mercy.” The workmanship is exquisite.

ARCHÆOLOGICAL FINDS AT BRISTOL, ENGLAND.—During excavations for building foundations in Bristol, in 1908, a number of objects of archæological interest were found. About 14 ft. below the street level a roughly made bone implement, $3\frac{7}{8}$ in. long, was turned up. It has a hole $\frac{1}{4}$ in. in diameter drilled at one end. The use is doubtful, but it may have been a cloak pin or a pin for securing the bolt of a door. “At the same time a red deer tine tip was found which had been bored at the larger end to form the handle of probably a tool.” A few days later, at a depth of 12 ft., the metatarsal of a horse and the half of a broken “sledge-runner” $6\frac{1}{2}$ in. long were found. The runner showed that it had been used on ice. Near by was a solid tine of the red deer. It is 8 in. long, and has been sawn off at each end with a metal saw. These probably belonged to an early date, possibly as early as the Iron Age, or soon after.

DISCOVERIES ALONG THE CHINESE WALL.—During Dr. Stein's visit to the salt marshes of Lop Nor and Tun Huang in 1907 he traced more than 300 miles of the ancient wall constructed by the Chinese at the end of the II century B. C. to protect the route to the west. It is composed of consolidated gravel and regularly laid strata of fagots of reeds. High watch towers strengthen the line of defense. Wooden and bamboo documents from a period covering the last century B. C. and the first half of the first century A. D. were found in what appeared to be office rooms of guard houses, or in rubbish heaps. A treasure cave with many manuscripts, paintings, and other Buddhist remains was opened. Hermetically sealed in a side chapel of a great Buddhist sacred cave was a "temple library" containing 4,000 manuscripts in 7 different languages. These seemed to have been deposited in the X century. Some of the manuscripts go back to the I century.

TOMBS NEAR ABYDOS.—Near Abydos Prof. Garstang of the Liverpool University has opened a series of tombs which seem to "belong to V or VI dynasty, but exhibit a mode of burial which it is believed has not yet been recorded. The skeleton is found lying on its back with the legs crossed, in the remains of a wooden coffin, on the middle of the lid of which was placed a large inverted shallow pot or pan of red polished ware and of beautiful workmanship." The coffin frequently contained a copper mirror, small pots and alabaster vases; and in some cases a large number of small copper implements. "The human bones in these graves are those of a very tall race, while the women seem to have been buried in the same way as the men, and none of the bones show any signs of mummification. It is most extraordinary that in none of these graves was found any inscribed object—the provisional dating given being from the shape of the pottery—although one of them contains an alabaster table of great size and exquisite workmanship."

"GRAVES OF THE DEVIL AND HIS WIFE."—Near Brighton, England, are two long mounds, popularly known as the "Graves of the Devil and His Wife," which, with the accompanying ditches, Mr. H. S. Toms and others investigated in August, 1908. Mr. Toms regards them as part of a rectangular valley-intrenchment of the Bronze Age. Excavations showed a slight rampart connecting the two banks. In one of the ditches at a depth of 2 ft. were found two fragments of typical Bronze Age pottery, containing grains of flint in their composition. Lower, a rough flint scraper was uncovered. In the rampart itself, were discovered half a dozen flint flakes, 4 to 6 in. from the surface. Horse teeth and fragments of bones also occurred. In the other section of the rampart, at a depth of 1 ft., was a fragment of hand-made Bronze Age pottery, similar to the fragment in the ditch. No old surface or grass line was found

below the rampart, raising the question as to the condition of the valley at the time earthworks were thrown up. Possibly the turf along the line of the works was removed, or the surface mould of the valley had been disturbed and mixed with the silt by cultivation.

SOME IRISH STONE CIRCLES.—In a paper before the Royal Anthropological Institute, Mr. A. L. Lewis discussed some large stone circles near Lough Gur, county Limerick. "These differ from British circles, being thick banks of earth faced on each side by large stones, but they are furnished with outlying single stones in a manner similar to that found at many of the circles in England and Scotland; these outlying stones are, apparently, in the direction of the rising of some star at a very early date." One of the circles was "restored" soon after 1860, and now "consists of a wall (150 ft. in diameter, and 5 ft. high) of stones, backed outside by a bank of earth 30 ft. wide, through which there is but one entrance, a passage 3 ft. wide, lined with stones on each side; this entrance is in the direction of the rising sun in May." It is suggested that if the restoration is correct, this differed in construction from the others, and possibly in purpose also; it may have been used as a pound for wild animals, driven into it from the outside over the sloping bank, and then kept to be killed as needed.

WORK OF A. J. B. WACE IN THESSALY.—At a meeting of the British School at Athens in February, Mr. A. J. B. Wace gave an account of his excavations during the previous year at the mound of Zerelia, near Almyio in Thessaly. "The previous identification of the place with the site of the temple of Athena Itonia was proved incorrect, though slight traces of a Hellenistic settlement came to light." Traces of 8 superimposed pre-historic settlements were found. All except the uppermost date from the Stone Age. The pottery extended from about 2500 B. C. to 1200-1100 B. C. "Painted ware (red or white) is commoner in the earlier than in the later levels, and the general fabric of the pottery tends to degenerate. The stone implements, on the contrary, show considerable development. An important point chronologically is the occurrence of (presumably imported) late Mycenæan (L. M. III) sherds in the latest settlement in connection with characteristically Bronze Age cist-tombs. This proves that Thessaly, as compared with Southern Greece, was affected by the culture of the Bronze Age at an extremely late date."

MORE POTTERY FROM "PUDDINGPAN ROCK."—In a paper read in February before the Society of Antiquarians (London) Mr. Reginald Smith discussed the Gallo-Roman red ware found on Puddingpan Rock, Hern Bay, in the Thames estuary. [See RECORDS OF THE PAST, Vol. VI, 1907, p. 95.] A diver had been employed to hunt for specimens, but stormy weather interfered so that only 3 fragments were recovered, "the largest being coarse ware of uncertain

date. Another was part of a dish belonging to the Rock Series, and the third, found at the distance of a mile, belonged to a small cup with engine-turned frieze, of thinner and better ware, dating from the I century." In all 280 specimens from the rock have been catalogued; 213 of them bear legible potters' stamps. There are 16 different forms, and 36 names of potters, some of whom are known to have worked at Lezoux, in Gaul. "If the theory is correct that the red ware formed part of the cargo of a boat wrecked on the rock on its way from the Gaulish coast to London, it follows that these potters were contemporaries, and the available evidence points to 160-190 A. D. as the period of their activity. Only unornamented specimens are found on the site, and the absence of 'figured' vases suggests that there was a brief intermediate period when nothing but plain ware was manufactured at Lezoux."

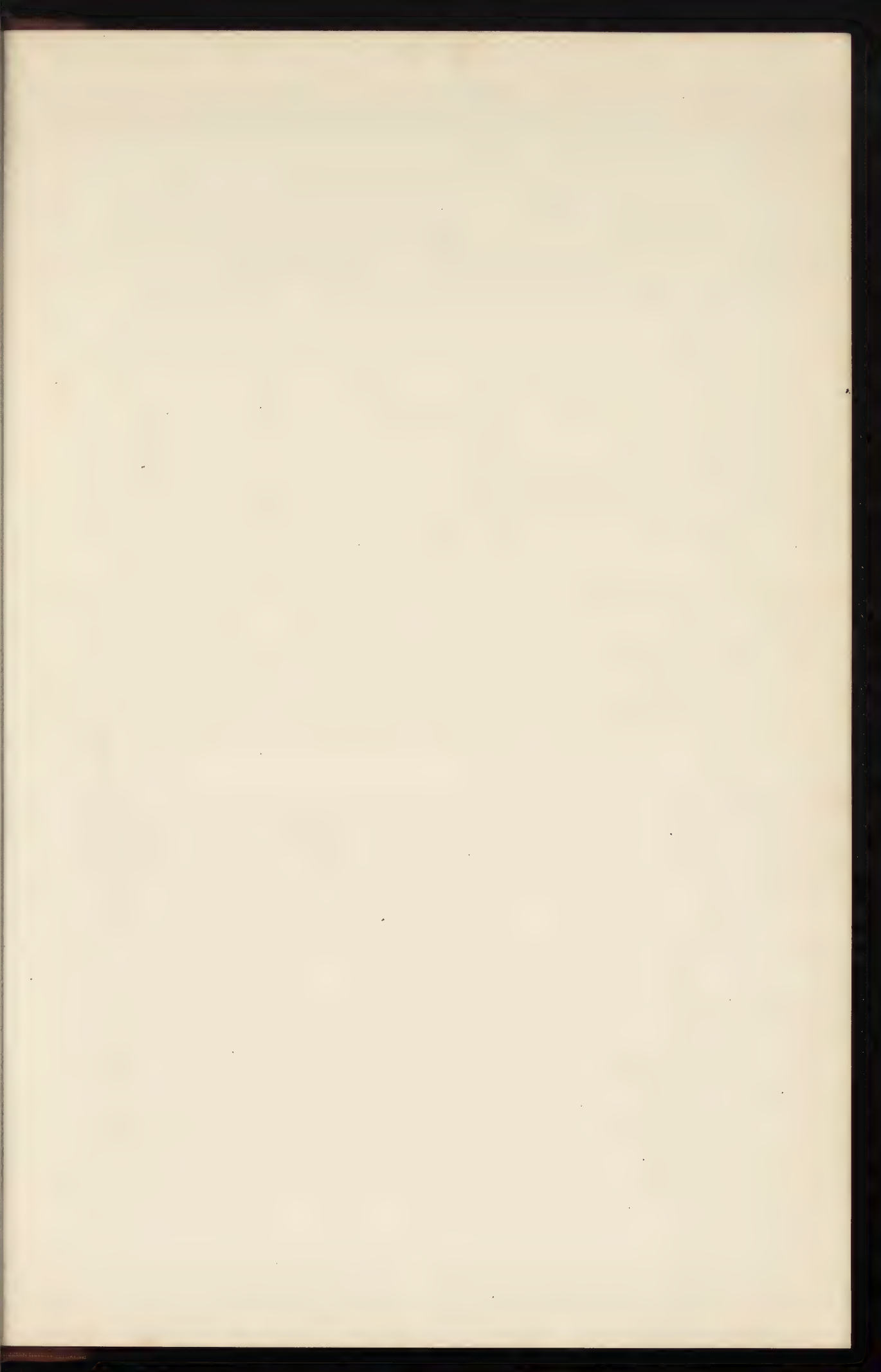
EXCAVATIONS AT CAERLEON, MONMOUTHSHIRE, ENGLAND.—During the summer of this year, local antiquarian societies carried on excavations at Caerleon, Monmouthshire. Permission was obtained to excavate part of the Priory Field. In one corner a watch tower was found. A large number of trinkets and coins of Domitian and Vespasian were dug up. The work was carried on along the line of a large culvert to "King Arthur's Round Table," really a Roman amphitheater. Interesting results are coming from the work at this point. Two piers of the south gateway through which the chariots passed to the arena have been found. The gateway is 9 ft. 6 in. wide. There are two walls of characteristic Roman work, with massive stones. "From the upper to the lower wall must have stretched beams of wood, or connecting walls on which sloping lines of seats were built, there being room, it is estimated, for 11 tiers, giving a seating capacity for between 4,000 and 5,000 spectators, while the arena, oval in shape, would have measured 138 ft. across its narrowest part." "This is the finest and largest Roman amphitheater yet discovered in Great Britain. On the inside of the lower wall and facing the arena, was found an inscribed stone. The inscription (in Latin) has now been translated, and reads, 'The company of Rufinius Primus, which formed a part of the third Cohort.' This would seem to show that at least a portion of the amphitheater was built by the third Cohort, of which Rufinius was the chief commander. A few interesting coins and other objects have been found."

M. DE MORGAN ON THE DATE OF THE NEOLITHIC AGE IN WESTERN ASIA.—M. de Morgan writes in the *Revue d'Assyriologie* on the remains of the early civilization of Elam, seemingly pushing the Neolithic Age in Western Asia back to an earlier date than had been thought possible. He holds that "the delta of the Tigris and Euphrates became fit for human habitation soon after the glacial period, and was seized by a race using polished flint implements, and living in small communities separated from each other by

marshes—whence arose the system of small city-states perpetuated in the government of the 'Patesis,' or priest-kings." In Susa he has found relics of a race which had outgrown the use of flint, and used copper weapons and tools. They also knew how to make pottery and to weave; painted vases; engraved on stone, and loved ornaments. This culture seems to have declined and been followed by a richer but less artistic one, using hard stone, quartz, lapis lazuli, and turquoise, which are not native in Elam, but must have been imported. Bronze began to supersede pure copper, and the use of engraved cylinders appeared. "When we consider that the cylinder in Egypt marks the very beginning of the dynastic or Pharaonic civilization, it seems to follow that a much earlier date must be assigned to these Susan monuments, and Mr. de Morgan is probably not far wrong when he attributes them to the VI millennium B. C." The Neolithic culture must have preceded this "in fact, must have died out before the foundation of the city-state in Susa. We are thus confronted with a civilization that bids fair to be considered the oldest in the world as it at present exists, and may have taken its rise not long after the retreat of the glaciers."

EXHIBIT OF RESULTS OF THE WORK OF THE EGYPT EXPLORATION FUND.—During July the Egypt Exploration Fund held an exhibit in London of the results of their work during the preceding season. From the tombs of the kings of Abydos came a wooden cylinder seal "in perfect condition, with an inscription including signs hitherto found only in the so-called 'tomb of King Zer,' which undoubtedly go back to the earlier writing of the I dynasty. There are also two complete seals—not from winejars—containing one, the hawk-name of King Den with the addition that is supposed to be his royal name, and the other the same hawk-name with 3 signs just visible, which may be read 'Mer-Neith.' If this reading can be supported, there can be little doubt that this was an alternative royal name of the powerful king whom we generally call Den, and that the theory which would interpolate in this dynasty another sovereign called Merneith is satisfactorily knocked in the head."

From the proto-historic cemetery at Mahasna, north of Abydos, where Mr. Ayrton unearthed over 60 untouched burials, come a great gathering of black and red pottery of the earliest known type, bearing no inscriptions except in 4 cases, where a roughly inscribed figure of a lion appears. A seal found with them bears the same device giving color to the theory that this was the burial ground of the "Lion tribe." The finds indicate that they used flint weapons, but were also acquainted with the use of metal, for a fine copper harpoon was found. These are, perhaps, the earliest known engravings, resembling the pre-historic paintings found at Brassempouy, Mas d'Azil, and other places. This cemetery also yielded a rich harvest of ivories and pottery with both painted and sculptured figures of hippopotami, and stone and ivory mace-heads.



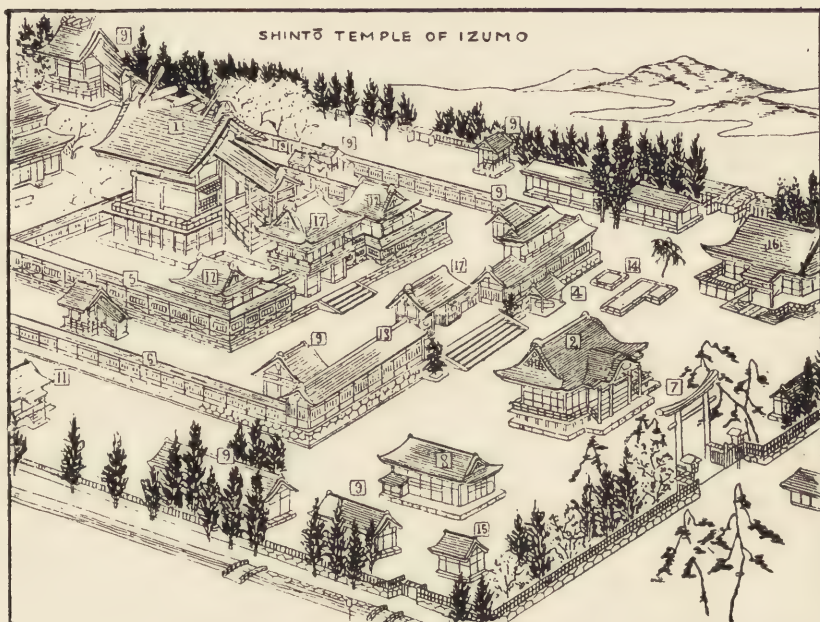


FIG. I. SHINTO TEMPLE OF IZUMO

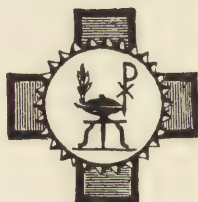
Combination of Malay piles with enclosure and Chinese terrace system with the entrance by a portico upon the middle axis. The complication and the facing of the roofs prove a rather recent execution. (After Münsterberg, *Japanische Kunstgeschichte*, t. II.)



FIG. 2. CHINESE GRAVEYARD ON CHINESE-MONGOLIAN BORDER, SHOWING GRAVES OF THE POOR PEOPLE

RECORDS OF THE PAST

VOL. VIII



PART VI

BI-MONTHLY

NOVEMBER-DECEMBER, 1909



OCCIDENTAL INFLUENCES IN THE ART OF THE FAR EAST¹

THE treasures which have been discovered in regions far separated from one another, in their forms and ornamentation often show that an astonishing connection existed among the old civilizations. In proportion as we dispel the veil of the past, we recognize the more that in universal history there has been only a single homogeneous civilization, which, adapting itself to the various geographic and ethnographic centers, is afterwards transformed into secondary, independent civilizations. Customs and technics are not fastened to the race so necessarily as are somatic characteristics such as beliefs and language, which preserve the marks of their prior evolution distinct from one another. Therefore, resemblances do not at all prove appurtenance to the same race;

¹This paper is the result of long research; a preliminary communication was made to the Anthropological Society of Berlin on February 15, 1908. I have since developed various points in the monthly Review which the Imperial Museum of Art and Industry of Vienna publishes, under the title of *Kunst und Kunstwerk* (1908, fasc. 6 and 7). The present paper is much more complete: thanks to the kindness of M. Ed. Chavannes, Professor of the College of France, who has placed at my disposal many of the photographs which he brought back recently from China; thanks, also, to M. van Gennep, who has communicated many works which had escaped me, and to whom is due this translation, it has been possible for me to give here new and decisive proofs in favor of the opinion which I brought forward in the two aforesaid articles and in my *Japanische Kunstgeschichte*, 3 vol., Brunswick, Westermann, 1905-08. This paper, which appeared in *Revue des Etudes Ethnographiques et Sociologiques*, was translated into English by Miss Helen M. Wright.

they simply prove a culture movement of which military expeditions, commercial relations, religious missionaries, and travelers of all kinds have been the vehicles.

To determine with certainty the relations which have existed between different peoples is ordinarily difficult, often impossible, inasmuch as the new customs have been transformed and conquests, invasions, earthquakes, and wholesale deportation have in many places destroyed the centers of the old civilization. In that case, we can only guess the former relations, relying upon the identity of objects found in localities far separated, but without being able to discover the intermediate elements.

We have no right, when it comes to a question of the creations of man, to presuppose always a biological evolution, as that which makes the entire organism come from a single cell. On the contrary, the works of higher art, created by the intellectual activity of a civilized people, are from the beginning perfect and most astonishingly naturalistic. It simply follows, by force of repetition and successive adaptations to new conditions of life, especially with the less developed peoples, that the forms and ornamentations become more or less unreal; the prototype can be recognized only with difficulty—a prototype of whose existence the actual artist is ignorant.

By placing together objects found in company and dating from different times, I shall try to demonstrate here that occidental influences made their way to the Far East and that they there expressed themselves according to the directions which show the adaptation of occidental art to the local conditions.

The available material is at present scarce. No excavations have been made in China which have brought to light objects antedating the I century B. C. On the subject of ornamentation, there is an important treatise, the *Pokutulu*, richly illustrated, which describes the imperial collection as it was in the XII century; the ornamentation of bronze vases furnished the most ancient forms of ornamental Chinese art. One cannot determine the evolution within each period, inasmuch as the dates given by the author of *Pokutulu*, which takes us back 3,000 years, are entirely without historical value.

There is more information upon the ancient times in Japan, where, in thousands of places, there have been discovered numbers of utensils of all sorts dating from the stone and bronze ages.

The period of Han (206 B. C. to 221 A. D.) in China furnishes us bronze mirrors with animal figures and plant ornamentation, then with stone bas-reliefs with human representations and dates. The recent excavations in Turkestan enable us to discover the beginnings of that higher art, which is not under the influence of the Buddhist religious painting and of the occidental plastic art.

The systematic study of the populations of the Far East under their most varied aspects of race, language, customs, art (architecture, weapons, pottery, utensils) has demonstrated that the region has been peopled by many successive invasions.

In Japan, there is an amalgamation of 3 races and of 3 civilizations. In the palæolithic epoch, Japan was inhabited only by the Ainu, who have been pushed to the north little by little and are found only on the islands of Yezo and Sakhalin. We do not know who inhabited the Chinese coast at that time. Many centuries later, the Malays landed in southern Japan; they knew how to work bronze, and gradually pushed the Ainu north. In the course of their invasions, they collided, doubtless at Idzumo, the Japanese point nearest to Corea, with a colony of people from the continent of Asia. Their civilization was the Chino-Corean civilization; they worked iron and talked a language appurtenant to the Ural-Altai branch. The Malay invaders learned that language, but in so doing, transformed it by the addition of a consonant to syllables originally ending in a vowel and by the formation of plurals by reduplication.

The colonists of Idzumo were the ones who introduced into Japan continental art which had already been submitted to foreign influences. In the north of the present Chinese Empire, the Chinese without doubt established the bronze age in the II millennium B. C., but it was only in the III century B. C. that they moved south as far as the Yang-tse-kiang. The powerful Turkish people, the Hiungnu, conquered immense regions in central Asia and pushed the Indo-scythians or Yuetshi from Bulingir towards the west. The latter conquered Bactria, which had been ruled since the III century B. C. by kings of Greek origin. The Chinese joined with the Yuetshi against their neighbor, the prince of the Hiungnu. It is from a writing of the prince of the Hiungnu, dated 176 B. C. that the Chinese first heard of occidental peoples. From that time, there was the regular exchange of political ambassadors, then of commercial caravans to such an extent that the Chinese products reached even the Mediterranean and Rome, as Pliny testifies.

Then the Chinese civilization admitted a new change by the introduction of Buddhism at the beginning of the Christian era. In northern India, in the province of Gandhara, a Greco-Buddhist art was formed, which, toward the II century spread into Turkestan, then into China (the height of painting and sculpture) then through Corea into Japan.

Each of the invading peoples and each of the consequent civilizations impressed itself upon the domestic utensils, the weapons, the ornaments, and technics, the architecture and the artistic representations, and in such manner that one recognizes the occidental elements. Every form and every technic once adopted, has maintained itself as a sacred thing, and has been imitated from century to century up to the present time.

Richthofen has already indicated that the use of plough-animals in the northern part of China leads to the admission of relations with the Occident, since in Japan and in southern China they knew how to work only with the pickax. He has not drawn any conclusions from his observation. In any case, that difference in the agricultural

technic now leads to the conclusion that Japanese and southern Chinese civilizations arose from other sources than the civilization of northern China.

Some years ago Hirth pointed out that the mirrors of the Han dynasty proved a Greek influence; there we see grapes and lions, although there were none in China at that time, and lions as well as horses are rendered so exactly that they could have been only imitations of a higher art. Then Reichel has placed together certain isolated ornaments such as the cloud motive so characteristic of the art of the Far East, and the similar Mycenæan ornamentation (II millennium B. C.). Hörschelmann has studied Chinese ornamentation from the drawings of *Pokutulu*. He believes that he has found the guide to the evolution of these ornaments; but, as has been said, the dates given in *Pokutulu* cannot be taken into consideration. Hörschelmann, as does the author of *Pokutulu*, attributes simple geometric ornaments to a very remote period, string-courses to the middle period, and animal ornaments to the recent period, just before the Christian era. There are here some points of view which I shall not admit, inasmuch as the forms of the bronze vases with simple geometric ornaments are of a technic so perfect and are ornamented with animal heads so well modeled that no one is justified in taking only the single flat ornamentation as a basis of appreciation.

The forms of vases and of ornaments sculptured in high relief require an artistic development much higher than linear ornamentation. Therefore I believe that the Chinese bronze vases are the imitations of objects created by a well advanced civilization. Then there was decadence, in consequence of the smaller capacity of the Chinese workmen of the epoch, and modification by the unending succession of copies of copies. It may be, also, that the workmen, variously endowed, were at the same time making both the most simple and the most complicated models, and afterwards it happened, perhaps many centuries later, that the author of *Pokutulu* built his theory, without doubt, with the assistance of very questionable oral tradition.

No one up to the present has attempted a systematic study of these forms. By comparing certain important pieces dug up in excavations with similar forms occurring in other regions of the world, I shall try to show the historic succession of the connection of the art of the Far East with the ancient culture cycles of the Mediterranean.

THE STONE AGE. PRE-MYCENAEAN INFLUENCE

Stone objects pertaining to the Ainu have been found in more than 3,000 localities in Japan, either in kitchen-middens or buried separately. The flint flakes, axes, and scrapers do not present anything specially remarkable. But it is otherwise with the pottery.

In contrast to the Malay pottery of the later period, that of the Ainu period is richly ornamented with wavy lines, spirals, ovals,

and is interesting besides on account of the bulging form and the handles. The forms, flat at the bottom which is often marked by the mats upon which they were set to dry, are entirely different from the subsequent Malay forms with a foot and bulging in belly-form. The pottery was made by hand; the bulging and handles answer so little to the technic of clay-work that they must be regarded as imitations of bronze vases.

If we compare them with Mediterranean pottery, we meet in Cyprus and Mycenæ about the III millennium B. C. the same richness of ornamentation with spirals and ovals; and we also find bronze vases whose bulgings and handles may, by reason of their forms, be regarded as the prototypes of the Ainu pottery.

More characteristic still, with regard to the connection between the West and the Far East during that period, are the little flat wooden idols which have been found with eyes and nose, but without a mouth, and human statuettes in clay. Even though these should rightly date only from a Japanese influence later than the Christian era, still they differ so widely from the contemporary Japanese clay statuettes that we are obliged to recognize an Ainu origin for them, when we build upon these differences. The Japanese funerary statuettes generally represent the subjects as slim and clothed; instead of which those of the Ainu are rather large and show the hips and sexual organs. Besides, there have been found more female than male statuettes. These particulars recall to us the prehistoric statuettes of southern France, of the grottoes of Matola, of the western Alps, of Malta, the Egyptian clay statuettes, the stone statuettes of Troy and of Amorgos, in brief, all the whole cycle of pre-Mycenæan culture.

Consequently, I believe that we have no right to regard these representations as the substitutes for human sacrifices, which is correct only for the Japanese figurines, but as the symbols of a feminine divinity of nature which was venerated from southern France through the Mediterranean country even to the Far East, during the Palæolithic age.² Identical flat idols have been found also in Cyprus, representing the Goddess of Fecundity.

In like manner, the phallus, which, so far as I know, does not occur under that form in China, has its prototype in Troy and in other western localities. In our day still the Ainu place phalliformous monuments upon their tombs and the village chief has for a scepter a baton which seems to end in a form that calls to mind that of the phallus. In Japan, the phallus, while known, has never acquired an important role in the ritual. Literature gives us but little information here, and that only in the popular superstition that it is useful either as indicating thanks for healing, or as a sign of a desire for fecundation, these in all sorts of forms and sizes. Perhaps these superstitions have been borrowed from Ainu women, captives or married, whereas if they had belonged to the mass of imported tra-

²In this connection we would call attention to the article on *Stone Effigies of Southern Russia* which appeared in *RECORDS OF THE PAST*, Vol. V, pp. 35-39.

dition, we should find an official indication in the religious or political customs.

On the most ancient representations of Chinese emperors and courtiers we see represented scepters or large batons. That custom was likewise carried to Japan and in our day still one sees the saints with a scepter in the hand. Ordinarily they are of stone, and may be regarded as a survival of the stone age, for in the Far East objects retain the identical form and material which they had at the time of their introduction. The scepter is probably a transformation of the phallus of which, however, the primitive form is scarcely recognizable, inasmuch as the knob has been modified, under the influence of the Chinese wavy ornament, of which we shall speak later, into an ornament in the form of a leaf which is afterward allied at a later realistic epoch to an ornament in the form of a mushroom. In China they give ornamental scepters for presents as we give Easter eggs.

The Ainu, with their little stature and large shoulders, their beards, thick black hair and straight, sunken eyes, present all the characteristics of a "Caucasoid" race, and their resemblance to the Little Russians and certain Siberians has been demonstrated by Wiennkoff and Bælz.

All this leads us to think that a "Caucasoid" population went out from the pre-Mycenæan culture cycle, perhaps about the III millennium B. C., and directed itself toward the northeast. To avoid the Persians, these emigrants followed the northern slope of the Asiatic mountains as far as Manchuria and the northern part of China proper. To know which regions of northern Asia were inhabited then either in a sedentary or a nomadic way, it is advisable to wait until systematic excavations have been undertaken in China, Manchuria, and Siberia. About a thousand years later, these "Caucasoids" were separated from the stone civilization by some peoples possessing bronze civilization, the real Chinese. The one had been pushed toward Russia, the other had passed the strait and colonized the islands of Japan. In the region of the Amour, the Ghiliaks, etc., an ornamentation existed which combined the Chinese bronze style with various characteristics of the style of the stone age.

In the course of many ages the Ainu "Caucasoids" little by little occupied all of Japan proper, preserving their stone age civilization up to the arrival of the Japanese, of Malay race. Doubtless they had not at that date kept up relations with the continent, inasmuch as these influences would be traced out in the series of esthetic forms.

THE BRONZE AGE IN CHINA. MYCENAEAN INFLUENCE

The Chinese, who arrived in China about the end of the III millennium B. C.—the beginning of the first mythological dynasty came about 2205 B. C., according to the *Chinese Annals*—knew how to use bronze and possessed a civilization so far developed that they received little after entering the country.

The occupants of the stone age were fishermen and hunters, and possessed winter dwellings dug out of the ground, the sites of which are still found in Japan in the form of rectangular cavities. The new arrivals brought the art of constructing houses, or at least they acquired it very soon. The most ancient representations known are found upon the stone bas-reliefs of the mountain Hsiao Tang Shan, in the Shantung, which date from the I century B. C., and upon the funeral monuments of the Ou family, from the year 147 A. D. also in Shantung. We find there houses of one or two rooms with wooden columns, a jutting roof covered with tiles supported by a scaffolding of posts surmounted by ornaments in the form of capitals.

There is nothing left in China of the dwellings which date from so remote an epoch; but all the constructions in Japan, both in their plan and in their construction, in which so far the Malay system of piles has not been met with, may be regarded as due to Chinese influence. In the old Japanese temples (Fig. 1) the primitive construction is placed upon the middle axis of an exterior rectangular court and access is made by one or more porticoes. The house with wooden columns, of a type identical with the stone reliefs, is built upon a base of stone or upon a terrace. The door is placed in the middle; stairs lead to the platform.

Now the Assyrian chateau-forts, as well as the dwellings of all nomads, have the living rooms around an interior court, but here on the contrary, there is an exterior court, which, as well as the base on a terrace, the square plan and the situation of the principal building, is encountered at Mycenæ and in Egypt. We do not know whether this system grew up in Egypt as a means of protection against floods or whether it developed in various places from local necessities, or whether after all it is a relic of ancient constructions for defense against pillagers or armies. In any case, the actual Japanese temples still present in our day these characteristics and constructions in the cities like the cella of the palaces and temples in China allow us to discern the same fundamental form.

As the most ancient regalia of the Chinese emperors, literature points us to the bronze urns of the emperor Yü (2205-2198 B. C.). Unhappily, they were lost 256 B. C., and we do not know what their form or ornamentation was. Richthofen thinks that the knowledge concerning these receptacles was considered so wide-spread that it was judged useless to describe them precisely. I believe, rather, the point to be that the regalia, the same as those of Japan (saber, amulet, and mirror), may be named, but they may not be shown to the public on account of their sacred character. It is impossible to determine from objects historically proved which forms of ornaments must be regarded as the most ancient. Many of the receptacles are reproduced in the *Pokutulu*, the ornamentation of which is maintained up to our day and is entirely independent of all later influence. We have to admit that that ornamentation was known and used as early as the arrival in China in the II millennium B. C., or else was introduced

soon after from the Occident, and that after the settlement at Shantung there had been new foreign influences. Through copies of copies, the primitive symbols, which had some significance in a foreign civilization, degenerated into ornaments without meaning. Up to the Han dynasty (206 B. C.) we find not a single sign of a realistic study of nature, nor even of any influence of new ideas which would issue from the indigenous civilization. The primitive animal representations became ornaments, but representations of plants, animals, and human beings from nature are lacking. The circle of ideas remains limited to the imported prototypes.

The first bronze receptacles already show a beautiful mastery in the lost technic of wax-work as well as that of the modeling and of ordinary melting and finally in that very difficult technic of hollow receptacles. The elegance of the forms and of the sculptured heads on the handles on one hand and on the other the defectiveness of the ornamentation, flat and in relief, upon the surface in two directions, proves that they are copies of good originals; wherever the workman had been obliged to adapt the design to the surface in his own way, the execution is inferior. The characteristic element of the ornamentation is the spiral; it is utilized either as an independent motive or to fill in blank spaces, round or angular (as a meander), and in all dimensions. Then we find shells, borders with animal heads, especially the head of the ox, of which nothing now remains but the nose and eyes which afterward became independent ornaments. As upon the flat idols of the Ainu, they represented the eye, the nose, and often the horns, but never the lower part of the face. The conventionalized animal representations which were afterward interpreted as fantastic figures, phoenix or dragon, and finally degenerated into spirals devoid of meaning, make us infer as prototypes the realistic representations of a foreign fauna. By reason of copying through the centuries, the workmen came to make the primitive work of the artist a tangle of lines without meaning. All over the world one may observe that the eye is better adapted to plastic than to flat ornamentation. In the first place, the living models may be rendered directly and modeling is possible without creative intervention; flat representation employs a conventionalized reproduction of the vision and an adaptation to technical conditions, that is to say, a personal esthetic work. That cerebral activity is possible only after a serious apprenticeship, and consequently the value of the execution depends upon that of the artisan.

Also characteristic of that ancient style is the "cloud" motive which represents the clouds and the rocks and presents them under conventionalized forms. Reichel has shown the analogies with the motives of the inlaid work in gold upon the dagger blades from Mycenæ. He has remarked, moreover, that a similar motive, adapted to the technic of painting, fills the spaces between the flowers in the frescoes of Crete.



Fig. 4.

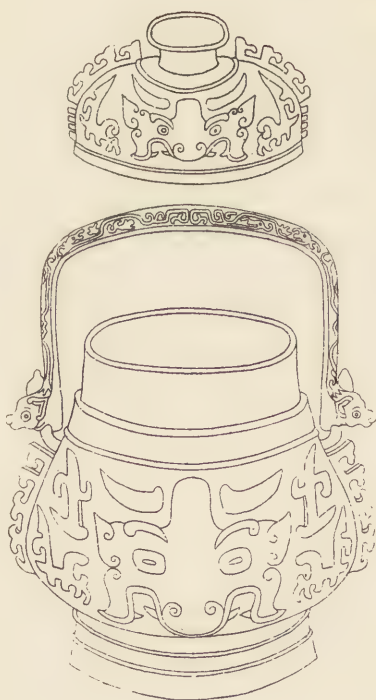


Fig. 5.

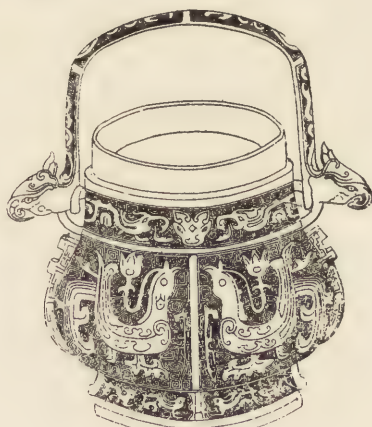


Fig. 6.



Fig. 7.

BRONZE VASES PRIOR TO THE CHRISTIAN ERA

Fig. 4. Vase with handles and animal heads. Decoration by zones filled with animal heads and meanders. The foot with ornamentation in spirals and triangles. Fig. 5. Handle ornamented with heads; the belly of the vase and the cover carry conventionalized ox-heads. Fig. 6. Handle ornamented with heads; belly with conventionalized animal ornamentation upon a background of meanders; on the upper border, ox and bird heads; in the middle, birds holding flowers in the beak. Fig. 7. Shells; above, conventionalized ox-head.

The two motives may have had a common prototype which is modified by adaptation to the various technics. The celebrated cups of Vaphio, of the II millennium B. C., furnish us a conventionalized representation of land with broken mountains. For esthetic reasons, the interval at the upper edge between men and animals has been filled by the same rock motive, but inverted vertically, so that the peaks hang free in the air. This ornamental filling of the empty spaces appears upon all the carvings on wood or stone in Egypt or Europe as well as upon the temples of India. Doubtless it was the sculptors who introduced that method which later became an esthetic rule transferred to frescoes and to metal work.

The rock or land motive took the aspect of spots in the frescoes; and upon metal objects, by the adaptation to the technic of cloisonné, the form of round, closed clouds. These variations, the same as the requirement of filling all the spaces equally, are the fundamental characteristics of the Chino-Japanese ornamentation, and have greatly influenced painting. Only much later that traditional ornament received a realistic interpretation by the reattachment to the mushroom of good omen. Upon an embroidery of the XVII century one sees the stone upon the sun, the clouds opposite the moon and the mushroom represented with the same ornament. For all these representations of stones and of clouds it is the Mycenæan motive which prevails up to the present. It influenced all ornamental art. Introduced into Japan, it there modified the earlier motives which consisted of circles and lines; then it returned to Europe, where, under the form of rock work, it drove into the background the architectural motives of the Renaissance.

The technic of inlaid work determined the form in volute when the requirement of filling the spaces involves the juxtaposition of innumerable waves upon the unornamented background. Presently the important motive became entirely detached upon this background or else was intimately connected with it. When they could obtain the same effect no longer with inlaid work but by reliefs or engravings, the round wave was transformed into a kind of meander. The meander in the form of a band appeared only about the Han dynasty, under the Greco-Bactrian influence.

Other proofs of relations with the Mycenæan culture cycle are furnished by the dagger and later by the straight two-edged sword, and by the long lance, then by the arms which present the sharpest contrast to those of the Malay-Japanese who came later.

The warlike tactics also show some resemblance to those of the Occident; the duel in front of the Japanese armies, which contrasts with the Mongol procedure of attack *en masses*, the same as the heroic individual combat of the Greeks and Germans opposed to the system of the masses of Asiatic peoples (Persians, etc.).

Each Chinese to-day builds a little tumulus for his ancestors, and for the members of the imperial family, they construct enormous



FIG. 3. JAPANESE EMPEROR IN HIS CORONATION ROBES, WITH THE SYMBOLS OF THE SUN, MOON, TIGER, LION, DRAGON, PHOENIX, AXE, AND FLAMES. FANTASTIC MODERN DRAWING, COLL. OF RADOWITZ

stone monuments or immense tumuli.³ Doubtless the modern execution recalls in no way that of prehistoric Europe; but in Korea and Japan, where, doubtless, that funeral technic had been introduced from China, we encounter until the VII century the royal tomb with large slabs, with an entrance passage and a central chamber which recalls clearly the dolmens and other shelters of Europe and of western Asia.

The *Pokutulu* reproduces some axes as being from ancient sacred treasure, axes which did not play at all a military role in the more recent historic period. In Japan, as in China, it seems that axes were used as signs of the enthronement of the emperor. That symbol, doubtless, passed from China to Japan in ancient times, at the same time as the square cap, similar to the sign of the doctorate in England. Upon the Chinese bas-reliefs it is only the oldest emperors who wore these square caps, the head-gear being entirely different later. On the contrary, they revived in the same quality in the XVIII century. Although direct proofs are still lacking, one is correct in supposing that

³See RECORDS OF THE PAST, Vol. I, Part IV, pp. 99-107, *The Ming Tombs*. See fig. 2 in frontispiece of this issue.

these special caps came from the west with other customs and symbols. It will then be allowable to regard the double axe of the Far East as the old Creto-Mycenæan symbol.

It is in this sense that we may speak of the Chinese, not as being Mycenæans, but as being the carriers of the Mycenæan culture cycle.

THE GRECO-BACTRIAN INFLUENCE. MIDDLE CHINA

The stone bas-relief which have been mentioned at several intervals, and of which the style is so peculiar, date from the Han epoch (206 B. C.-221 A. D.). Several stones of the I century B. C. have been found upon the hill Hsiao Tang Shan and others have been dug up by chance in the XVIII century; these belong, according to their inscriptions, to the tombs of the Ou family, and are from the year 147 A. D. The two localities are in the Shantung, which constitutes, with the regions watered by the river Jaune, a civilized oasis in the Far East.

We encounter here an entirely new conception; for the first time men and animals are represented either by engraved lines or in relief. At the first glance, the short, dumpy horses and the chariots with two wheels recall Greek art. Although few works have been preserved to us, it is certain that at that time and in that spot there was a considerable artistic activity. Nothing allows us to infer the evolution of that art; it is believed, however, that, the same as before, the best possible forms, so varied, of Mycenæan art had come into China and had been imitated, thus indicating that here, too, there had been an imitation of foreign prototypes of superior value.

The region of the river Jaune originally constituted an isolated cultural province in eastern Asia; then the Chinese influence crossed the Yang-tse and little by little penetrated toward the south. In return, there was a whole series of little states situated to the north of India and central Asia which preserved Greek art. We know by the annals of the Han dynasty that regular political and commercial relations had been established between China and the western regions under the Emperor Wu ti (140 to 87 B. C.). It was thus that the products of Greek art gained access to China. Hirth was the first to surmise that Greco-Bactrian influence.

As the works of Confucius contain the rules of life drawn from history but not the reflections upon the psychic life, and as narrative ballads preceded lyric poems, so figure representations were still only a register of the history of the day or served to illustrate the traditions then current. In fact they are the naive annals of historical events. Further, the clouds and the stars personified are sometimes represented.

Still there were no rules of composition. The surface, just as upon the bronze ornaments, was filled with figure representations; at the free ends they inserted preferably birds.



FIG. 8. CHARIOT OF CHINESE EMPEROR (AFTER AN ENGRAVING ON COPPER, GROSIER)



FIG. 9. COMBAT ON A BRIDGE; ARCHERS, SOLDIERS ARMED WITH SWORDS AND SHIELDS. TOMB OF THE OU FAMILY, SHANTUNG, 147 A. D. (AFTER CHAVANNES)

The technic required a juxtaposition and a superposition of figures and thus rules of perspective were established which have continued to the present day in the painting of the Far East. As later Greek painting in light and shade never reached China, they did not learn how to render the depth of the values, but they held to linear representation. The subsequent development of painting toward pure esthetic art required a much greater care in perspective, and then

that the system of superposition of designs should be replaced by perspective in straight line, a proceeding which separated absolutely Chinese painting from the European conception during later centuries.

The technic of the relief on its part required a close observation of nature and the special expression of motion. Drawing in silhouette has remained essential for figure representation in painting and still more in industrial art. If Jananese prints of the XVIII century are placed beside reproductions of stone sculptures, an exact identity is established between the drawing of men and of animals, even to such details as increasing the legs of the horses, the exaggerated shoes, a compact body and a very thick neck. If the human representations are rounded off little by little in Japan, it is the influence of the rythm of the Japanese calligraphy. But the primitive contours are maintained.



FIG. 10. DARIUS IN HIS WAR-CHARIOT ATTACKED BY ALEXANDER THE GREAT ON A HORSE (AT THE LEFT), MOSAIC FROM POMPEII

The sculptures in question give an excellent picture of the civilization of the Han period. We see the courtiers clothed in long flowing garments, the servants in short jackets and breeches. The rank of the nobles is indicated by special caps which continued through long ages in Japan when the changes of dynasties made them disappear in China.

The king's counsellors carried, holding it before them with two hands, a cane, doubtless the last survival of the phallus. The battle scenes show us the nobles upon chariots with two wheels, protected by the horsemen and the foot-soldiers. A kind of chassis in the form of a roof marks the vehicles of travel and of war, but the imperial chariot preserved the primitive form, a kind of box, carried up on high wheels by 4 horses in front, and which serves also for the war chariot of Darius in the famous Pompeian mosaic.

Beside the small bow, they used the straight sword and the bossed shield. The sword had a long handle, pierced, with long tassel. The bronze swords served during the iron age for a medium of exchange, and the first money was coined (III-II century B. C.) according to

that traditional form; then the blade fell off and only the point of the handle, with the hole, continued (*sapèque*).

Upon one of the sculptures they represented the heavens personified; there we see also the Great Bear with its seven stars and above the motive of clouds unrolled in a band, with angels and birds. This is, perhaps, the starting point of that celebrated motive, which was imported into Persia by the Mongols in the XIII century, and thence spread into Europe.

Other influences of the classic art are recognized on the metal mirrors, the reverse of which bears for the first time beside various animals, plant designs. As imitations of foreign prototypes we must regard: the circular band, so often poorly interpreted, the motive of the vine (imported into China from Ferghana), of the lion (an unknown animal in China); we meet again the winged horse, the



FIG. II. REVERSE OF BRONZE MIRRORS WITH ORNAMENTATION OF ANIMALS, PLANTS, AND BORDERS IN THE GRECO-BACTRIAN STYLE OF HAN EPOCH—206 B. C.-265 A. D. (AFTER THE *Seishi-Kokkan*)

peacocks or cocks, amazingly outlined, from which the phoenix originate; insects and plants are rather frequent and the simple circle is here often transformed into a wavy line.

All these motives are directly attached to classic Greek and Roman art. On the contrary, upon the sculptures of the I century B. C., as upon those of the III century B. C., afterwards upon the metal mirrors and upon the silver knife of the year 766 A. D., we see a galloping horse which we encounter neither in classic art, nor in Egypt, nor in Assyria, nor in Europe in the Middle Ages during the Renaissance and up to the end of the XVIII century. S. Reinach has given that gait with 4 legs extending horizontally almost in a line continuous with the body, the name of flying gallop (*galop volant*); it has been found only in the Creto-Mycenæan civilization. That curious fact has been demonstrated by S. Reinach with such a profusion of proofs that no doubt can exist on that subject.

The most ancient document seems to be the Vaphio vase (II millennium B. C.); the subject is the capture with a lasso of a bull whose back is bent and whose legs are extended, representing a gallop which does not exist in nature. The galloping lion of the Mycenæan dagger also has the legs elongated. The Chinese representations answer exactly to these prototypes. It is necessary, then, to admit that there was in central Asia a tide coming from the Mycenæan culture-cycle. If the flying gallop occurs in Persia under the Sassanides and in Siberia, it is doubtless because there had been a center of radiation from which expansion was made at that time in 3 directions. Up to the present no one has reconstructed the chain of transmission. Hirth has called the style of ornaments upon mirrors "*greco-bactrien*;" consequently, I am led to name the style of the flying gallop "*greco-mycenien*," to indicate the double source from which sprung the composite style of the time of Han in central Asia.



FIG. 12. GALLOPING LIONS ON DAGGER FROM MYCENAE

One will note that the flying gallop does not exist in nature, as the diagrams of Marey prove; certain modern painters have wished to transport the real gallop into art, with the 4 legs folded back under the body (Morot in 1886 first). In my opinion, it is an absolutely antiesthetic tendency; the old Chinese were much better observers. The artist should render what he sees in a manner to awaken in the spectator an identical impression. The movement as dissected by the instantaneous photograph cannot be seen by the eye; it sees many movements at a time and every one who watches the galloping of horses, will see at a given moments the limbs lengthened before and behind, by the superposition of many images. That impression is strengthened by the image which shows us the leaping of obstacles.

Perhaps that representation of the very rapid gallop seemed inesthetic to the Romans and Greeks, and afterwards to Velasquez and Rubens; perhaps it was afterwards mixed with a cycle of ideas which is to-day incomprehensible to us. Thus the flying gallop

would seem incompatible with the dignity of the cavaliers and princes who are always represented on horseback, that dignity requiring the actual contact of a heavy charger with the ground. In any case, the fact is that outside the Mycenæan culture cycle in the widened sense, horses were represented trotting only, or at the moment of bounding, with the two rear feet resting on the ground, the forelegs being extended or bent back. That motive which recurs in Egypt and Assyria in abundance, is the least natural of all those which one can imagine. In Europe the flying gallop appeared, according to S. Reinach, only in 1794 upon English engravings and in 1820 upon English pictures representing horse races. The question now is to give an impression of speed and nimbleness no longer of force and weight. On the contrary, the representation of the flying gallop was maintained after the Mycenæan epoch in Persia, China, and Japan as much for horses as for game. If the Mycenæan prototypes had been distorted into schematic ornaments by the most primitive peoples according to the lower level of artisans of that time, it is allowable to suppose that on the contrary under the Han dynasty, the people came to a higher artistic level, inasmuch as foreign works were reproduced, not with the degree of perfection which the originals possessed, but still much better than the earlier population had done.

Objects from the excavations of the Han dynasty or later and those which have been found in the dolmens of Japan include among others vases of similar form. The last documents recently recovered by E. Chavannes show us pyramids and carts of stone of the V century in northern Corea, and the hundreds of tumuli of Kouigo, not yet systematically excavated, doubtless preserve for us the same results as those which have been obtained in Japan, provided that they have not been violated already. In China, moreover, they have found clay urns in the form of granaries with tile roof, sheepfolds, piggeries, and other representations of the daily life which are lacking in Japan. The representations of camels, of horses, and of human beings, have a realism far superior to that of Japan; note also the sphinxes with human heads and wings, and the fantastic winged animals, which are entirely lacking in Japan, and carry us back again to a western influence. It seems to me that these representations are subsequent to the Han epoch. Finally, I mention again the dishes with large feet similar to those from the Japanese dolmens, then the urns which correspond to those of ancient Egypt, in the form of a circular granary. Interesting also are the potteries in the form of a well, provided with the framework intended to draw the pail; a pail itself has been found. With regard to the wells with a beam, they seem to be a primitive form, and we see them reproduced in stone.

Equally interesting are the representations in clay of sheep and pigs on the inside of vases which answer, perhaps, to the courtyard, the sheepfolds, or the piggeries. These are funeral offerings, which, without doubt, were intended to serve for the food of the dead. On

the contrary, no one has yet found vases with figures similar to those which were manufactured in Japan under the Cypriot influence.

Upon a mirror which was preserved in a Japanese temple from about the VIII century we see the Mycenæan and Greco-Mycenæan motives already passed in review, assembled in a pictorial manner and developed according to new means. The central circle rises toward the exterior in order to give the contour a double undulation. At the center, water is represented according to the ordinary system, with rocks which correspond to the classic prototype. Above are placed some animals, the spaces between which are filled with clouds, just as upon the plate of Mycenæ. Animals, likewise, fill the outside border. They had lost the feeling of the continuous Greek line so that detached elements have been placed together. The acanthus leaf had been complicated and had become a fantastic plant ornament.



FIG. 13. DETAIL OF SILVER VASE WITH ENGRAVED MOTIVES; CAVALIERS, ANIMALS AND PLANTS. CONVENT OF PODAIJI, 766
(AFTER MUNSTERBERG)

Upon a silver plate of the VIII century we see, between the extended clouds, bouquets and birds, hunting horses, flying game which show a superior technic. The small bow and the costumes indicate a Chinese model, but the upper and lower edges show the influence of the Greek border.

BRONZE AGE IN JAPAN. CYPRIOT INFLUENCE

According to old legends, toward 660 B. C., Timmu Tenno, the ancestor of the present Mikado, arrived in the western island of the Japanese empire. The great deeds of his divine ancestors and of his human successors are related at length in the *Kojiki* and the *Nihongi*,

which were written in 712 and 720 A. D., following more ancient reports. As writing was introduced by the Coreans into Japan only at the beginning of the V century, the writing must have followed oral traditions, and consequently, lacked historical certitude.

Much more important are the numerous ancient objects which have been uncovered during excavations, or which still remain in living customs. Everything which disagrees with the habits of the people of the stone age and does not carry the imprint of later Chinese influence ought to be regarded as appertaining properly to the conquering invaders, which we connect with the Malays by race and language.

The underground *yourte* of the stone age had been replaced by construction upon piles which the Malays elaborated in the inundated country. The roof in the form of a saddle, was covered with reeds and the only Chinese influence which appears is the tiled roof and the undulating line. The plan of the temples is not systematic; it is an enclosure in the middle of which stands the temple or the treasury of the *sacra* and the regalia and the dwelling of the chief.

It seems that in the beginning it was not properly a temple so much as a place of worship, inasmuch as before the introduction of Buddhism it was not a true residence of the deity. Some special places, springs, old trees, etc., were venerated as the seat of demons, good or bad, and were surrounded by an enclosure. It was a cult of nature worship or ancestor authority without figure representation.

The corpse, according to the discoveries of archæologists, was buried some meters below the surface. The tumuli, on the contrary, were raised only after contact with the population of the Asiatic continent, inasmuch as only straight, one-edged iron swords have been found, whereas only double-edged bronze swords have been found upon the level ground. Although numerous imperial tombs were not constructed until much later, the objects found, especially the pottery, the glass beads and the ornamentations upon stone are characteristic of the style of the ancient Malay epoch, for the transformations due to the Chinese influence are easily recognized.

In contrast to the Mycenæan style of China, we find here the armament of the Greek classics. The large bow, the short sword, two-edged, curved in the form of a lance, with a central rib showing, and a broad plate around which the handle is twisted like a band, then the double-edged lance with the central rib showing.

For protection against the return of the bowstring, there was used, in Japan, for ages a pad which is unknown in Asia, China, and Persia, where they used only the little equestrian bow. On the contrary, it is found on the bas-reliefs of Nineveh and Babylon.

They put small clay statuettes in the tombs of princes. Often the human statuettes are in the form of bells, resembling, except for the technic, those found on Cyprus. The warriors are represented most often with helmets of all sorts of forms. Some of them were

in leather, or better in leather reinforced with horizontal bronze plates, or finally, entirely of soldered bronze plates. The wings of birds were imitated in bronze. Since copper was not found in Japan until 698 A. D., a considerable importation of copper must be admitted, without doubt in the form of plates or bells, as quantities of these have been found in the ground.

Characteristic pottery in large quantities has also been found. In contrast to the flat-bottomed Ainu vases of the stone and pre-Mycenæan age, they now preferred the round form with a tall foot. Very remarkable are the vases with numerous tubulures and those which are ornamented with small animal and human statuettes.

The ornamentation made of lines and simple dashes, such as could be made with a nail or a comb with many teeth, or even with the edge of a shell, is inferior to the spiral ornamentation of the Ainu.



FIG. 14. PREHISTORIC POTTERIES. MUSEUM OF TOKYO

The most ancient vases, such as those of the stone age, were made by hand, while the objects of the dolmens were made for the most part with a lathe, and show the Corean influence.

If we search for a place where similar potteries are found, we must turn back to Cyprus, where, in the VIII to V centuries B. C., we find those identical with them. If, as yet, such potteries have been dug up only on an island like Cyprus they would, nevertheless, be significant in the culture cycle of that whole time; as the urns with statuettes of the V century B. C. found in Etruria. Without doubt votive statuettes, animal or human, were in use everywhere, but their combination with urns for a ritual purpose is singular, and is continued.

Again, in the V century B. C., we see upon the Etruscan helmets a form calling to mind the bronze chin strap in the shape of an ornament in relief, and we find these bands upon the high caps of certain barbarians on the column of Trajan. They used in Etruria the short two-edged sword and the great bow with swathed handle, and the lance.



FIG. 15. JAPANESE DANCE MASK, STYLE OF VIII CENTURY

Recently there has been found in China pottery with animal representations, of such sort that we can suppose a southern Chinese civilization anterior to that of northern China. The researches undertaken among the Miao-tze, aborigines at present driven back into the mountainous regions of southern China, have shown many points of resemblance between them and the Japanese; it is suitable, then, to regard these old southern people as the intermediaries between western civilization and Japan.

There is reason, then, to recognize that the peculiarities of the civilization imported by the Malays corresponded to the culture cycle which was dominant in the VI century in the Mediterranean countries from Italy to Assyria. It is that civilization of the Ægean Sea which from the principal place of discovery, I call *Cypriot*.

The glass beads and cylinders, the use of bracelets and earrings of copper and of gold, the little plates of thin gold, beaten and engraved, equally recall the Occident. I should add that the stone ornaments, the *magatama*, to which I do not yet know any parallel elsewhere, are made in part of stones which do not exist in Japan, and which, therefore, must have been imported.

Finally, I believe it useful to indicate that according to ancient literature, comic dance masks were employed very early. Many of the demon masks in most particulars are connected beyond dispute with a Greek prototype of the lion head. It is very likely that these forms were imported from India only with Buddhism. The most ancient Japanese masks which are known date from the VII century, but present some peculiarities which are not encountered in Buddhist art. It is settled beyond question that masks existed likewise in China which have been lost entirely. But it appears more probable to me to suppose that the Japanese invaders brought with them the masks

which they had acquired by the same commerce as the glass beads and the gold ornaments. The style of large nose, non-Japanese, the projections on the forehead, the large eyes, the right deeply sunk and the left turned back, so strongly recall the Greek and Roman masks that we must admit a common prototype.

In Greece, it was only in the VII century B. C. that the tragic mask was created, when formerly, for the Dionysia and the comedies, only the comic masks served. The ancient Japanese dances, and especially the dance of Uzume, traced back into the mythical epoch, and the sacred literature believed to be the most ancient, had a comic aspect. The foreign influence dated, then, from an epoch when the masks of serious character had not been invented. It will be noticed that the Roman masks represented the jesters carrying at the corners of the mouth appliques in the form of rosettes which are represented identically upon Japanese masks.

The Greek influence upon the slightly civilized Malays seems to have been exercised, according to the testimony of the masks, before the V century B. C., and, according to the pottery, after the VIII century B. C. In other words, the agreements of certain technical and esthetic elements allow the possible admission of the intellectual influence of the Occident upon the Far East.

A remarkable coincidence—the Japanese strophe of 5 verses, with 31 syllables, corresponds exactly to the 31 syllables of the Greek couplet. As it is said that Susanow, the brother of the sun-goddess, is the inventor of that poetic form, we can suppose that it belongs to the most ancient traditions of the Japanese conquerors.

IRON AGE IN JAPAN. COMPOSITE CHINO-JAPANESE STYLE

From the contact with the Korean civilization came the enormous tumuli and the dolmens, which were constructed with immense blocks over the stone sarcophagi of princes. In the *Nihongi*, which dates from the year 720, a decree of the emperor Kotoku, of 646 A. D. is mentioned, which bids the suppression of that custom. This directly points back to the decree of a Chinese emperor which opposes "putting beads and precious stones on the mouth of the dead." That rite corresponds to the ancient Chinese rite which consisted in putting jade fragments upon the mouth of the dead, in order to allow the reincarnation of his *Yang* or vital force, and, in the time of the Han, of beads for the same purpose. Under the influence of Buddhism, the raising of magnificent funerary monuments ceased throughout China, and also (about 646) in Japan.

At that same time, the bronze sword was replaced by the iron sword, the only one which is found in the dolmens. With the metal, the form also changed. The ancient Chinese double-edged sword was cut in two lengthwise and became the one-edged saber. In China we meet both forms, whereas, in Japan, the two-edged iron sword no longer exists except as a temple scepter.

The handle is no longer bound on to the blade, but the sword is supplied with a tongue, which penetrates into the wooden handle and is then fixed by a transverse rivet. The short sword is replaced by a long saber, and is supplied with a guard to protect the hand. To diminish the weight, they carved the blade following the linear ornamental motives.

The sharp iron blades required scabbards; they were made of wood, often provided with appliques in metal, whole and carved. Here, still, only the primitive models of ornamentation are found. Bronze armors seem to have been unknown in Japan, and still in historic times they carried breastplates of skin and of cotton. Occasionally in the dolmens iron armors are found made of plates as large as the hand soldered together, and also iron helmets, which recall the ancient skin caps furnished with horizontal bronze bands. We also encounter in that epoch the movable covering for the back of the neck.

While these forms are connected particularly with the ancient types, we also find in the post-Christian dolmens iron helmets completely transformed under the Chinese influence. What characterizes them are the numerous vertical bands, fastened to each other, held at equal distances by transverse bands, and reunited at the top in a manner to form a ring hollowed out at the center. To the lower part is fastened a visor. All the type forms of casques which remained up to the European influence in the XVI century were established before that remote epoch.

To the progress of the Chinese technic in bronze corresponds the use, in Japan, of little bronze rattles, which they fastened to the garments or united in the form of a bracelet; they served also as a passport, and still exist as a sacerdotal object. That rattles of this kind, with engraved characters had the value of passports, allows us to suppose that they were not invented in Japan, but were imported; in any case, it has not been easy for the Japanese to imitate them. Small bells have always been an object of international commerce. We see them on old Hindu images suspended from draperies and used as ornaments. We have encountered them also in the prehistoric tombs of eastern Prussia, at present preserved in the Museum at Dantzig.

Bells were fastened to the horses as ornaments, but the large bells of the temples were not imported from Corea until the VI century.

The stirrup, which we see upon votive horses, corresponds to the European form, but we do not yet meet with the stirrup in the form of a shoe, which was employed only very late.

We have seen that the ornamentation with a ground work of lines and circles goes back before foliage and undulations. One also sees that the engraved representations of the Zodiac and of animal heads and knobs appear, but human representations and writing are still lacking.



FIG. 16. OBJECTS FROM EXCAVATIONS IN TURKESTAN, IN MUSEUM UENO, TOKYO. 3-8 HEADS OF SEMITIC-MONGOL TYPE; 9 FRESCO, BUDDHIST FIGURE OF SEMITIC TYPE WITH GREEK COSTUME; 10 FRESCO, BUDDHIST HEAD OF MONGOL TYPE (AFTER MUNSTERBERG)

BUDDHIST ART. GRECO-HINDU INFLUENCE

A high art can be built up only with the personification of divinities. In the beginning, Hindu Buddhism represented, by the sculptures in relief with panels superposed, the regions traveled over by Buddha. It was in the north of India, Gandhara, that centuries after the death of Buddha, in the I century A. D., representation of his figure was developed in the course of departing from the ancient sculpture. The latest discoveries in Gandhara and in Turkestan show that if the prototype was obtained from Greek sculpture and painting, the later development was under the influence of various races and conceptions which have met in that region.

While the heads of Gandhara present the Aryan type, with sunken horizontal eyes and large nose, as well as the mouth clearly of Greek form, we recognize on the contrary among the objects of the IV to VIII centuries discovered in Turkestan the influence of Mongol and Semitic types. The wide drawn out eyebrows, the goggle eyes and the long, drooping lashes, the full, round chin and little mouth with large lips, recall unquestionably the Japanese frescoes and paintings.

That style of Turkestan is maintained up to the present in the ecclesiastical art of the Far East. We see how a mode of representation for an idea or a determined custom introduced at a certain epoch perpetuates itself; the figures may be slender or stout, in color or in outline, realistic or impressionistic, but always a certain fundamental style is preserved.

In the contracted fingers, the Japanese paintings correspond to the frescoes of Turkestan, as well as in the heads of the figures. The flowing robe is never designed according to nature, but always presents a conventionalization of foreign and hieratic origin. Upon a poorly-preserved fresco of the year 610 A. D., probably painted by a Korean immigrant, we recognize beyond possible doubt, the type of Turkestan. The bare feet, the ornaments on the head and neck, the rich flowing costume, the attitude and the movements are so characteristic that, if we did not know that the original was found on the wall of the Horiuji cloister in Japan, we should take it for a fresco from Turkestan.

At the same time, one sees that at that epoch Japanese art was upon the same plan as European art of the Middle Ages. There were still no local differentiations, but the reminder of the Greek prototype is still alive. The figures are conventionalized but in natural positions.

The movement of flowing veils and of garments is likewise borrowed from antiquity. Upon the representations dating from the early centuries of our era, as much upon the frescoes as upon the mosaics, one sees that same movement of garments intended to indicate flight in the winds and celestial qualities. While in Europe the veils are replaced by wings which became the exclusive attribute of angels, in eastern Asia, on the contrary, the flowing veil continued to symbolize divine and celestial qualities of figures.

The representation of flight has, in certain cases, followed an interesting evolution. Certain divinities of the Far East, among others and always, the god of fire, Fudo, are to-day represented with the hair in the form of a flame, whose red color reproduces that of fire. And yet the origin is entirely different. Upon certain classic bas-reliefs we find nude dancers whose hair waves to emphasize the pose. That undulation has come to indicate the divine character of the inhabitants of the sky, and in the course of centuries, the classic prototype has been forgotten, the curly flying hair of the Greek dancers has become the flame symbol of the god of fire.

The Greek prototype is still visible in the Chinese art of the V century, but without their understanding the real significance. On the wall of the grotto-temple of Lang-men we see a figure which carries the winged petasus of Mercury, the trident of Neptune and the thyrsus of Dionysus. That senseless accumulation of uncomprehended foreign attributes is a typical example of the manner in which the classic prototypes have been transmitted by intermediary artisans up to the moment when, after many centuries, a powerful national art created new personal symbols.



FIG. 17. CHINESE DRAWING REPRESENTING THE
GENIUS OF FIRE

The Buddhist sculptures which M. Chavannes has photographed and whose inscriptions he has traced date from before the VI century. These interesting works show an art which had become traditional and was transmitted by artisans. The pointed nose, the dull expression of the face, the stiffness of the folds, the typical position of the feet and hands are possible only if—we see this in the representation of the king in the upper panel (Fig. 18)—a naturalistic model had served at the starting point. It is an imported art which has been copied servilly, with adaptation to the local material conditions of execution.



FIG. 18. MURAL SCULPTURES IN THE GROTTA OF LONG-MEN, AFTER A PHOTOGRAPH COMMUNICATED BY M. CHAVANNES

Note how the Hindu sculptures in wood have been imitated in the sculptures in stone. Even the scallops which frame the wooden niches in Hindu temples have been reproduced. The figures are stuck to the wall, and each of them is upright or sitting isolated in its niche. The faces are done with little care, and all are the repetition of a type form. The only differences show in the grand total, and the position of the feet. Very interesting is the sitting position and the legs in a X but not squatting, since that classic position had then disappeared.

In dating these Chinese sculptures, we compare some bronzes of the same epoch in Japan. The dull visage, the stiff position, the



FIG. 19. FRESCO FROM THE MINTS OF DANDAN-UILIG, KHOTAN, END OF THE VIII CENTURY (AFTER STEIN *Ancient Khotan*). NOTE THE POSE OF THE WOMAN WHICH RECALLS THAT OF THE GREEK VENUS

folds of conventionalized clothing and even the pointed nose are found here. Further researches will, without doubt, allow us to date more exactly according to the diadem, the costume and the ornaments the Chinese sculptures, and all of us will be grateful to M. Chavannes for having, by his work, furnished exact points for the study of the evolution of the style in that remote epoch.

Living man was executed with a realistic study, according to nature, whereas all the religious representations preserved the form fixed by the classic tradition. It is only little by little that the naturalistic tendency became so strong as to modify the representations of the gods, not in their entirety, but in various details, by the adaptation to the more modern artistic style.

On the frescoes of Turkestan we see coexistent two different styles which are also coexistent in China and Japan. The nude gods, slender and with sunken shape, contrast with the priests, clothed and reproduced according to nature. For the real men, contemporaries of the artists, they tended toward portraits, whereas for the gods they preserved the fundamental conventionalized forms of a foreign Hindu art.

It was thus in Turkestan and so continues to the present time in China and Japan. The same phenomenon for statuettes; the Buddhist priest is represented according to nature, but the divine statuettes are more conventionalized. In Japan a national art has been formed by the development of these two styles, until in the XII century (school of Kamakura) the realistic tendency conquered tradition, to be in the following epoch, petrified anew under the form of tradition. That which the absence of painting hinders us from proving definitely is seen with clearness in the plastic arts. The well preserved torsos of Turkestan allow the recognition, in the transparent garments and the scant folds, of the survival of the classic style, whereas other representations are realistic copies of the daily costume; the god of the sky, standing in royal costume leaning upon the chained demi-god Yaksha, whose barbaric head, with curly hair and large grinning teeth, is a study after nature. One might ask whether the exaggeration of the teeth corresponds to the reality, or expresses the demoniacal character of the conquered, or perhaps, again whether it is an artistic process to render the contrast between a dark skin and the white teeth. One cannot decide the question here whether this is traditional conventionalism or an actual portrait. One will notice that the eyes stand out of the sockets and that, in painting, to represent foreign demons they preserved the habit of attributing to them large, round eyes with the pupil encircled with white. The representation of different races as a sign of the extension of Buddhism or to signify the claim of the emperor of China to tribute has passed into Japan and is there maintained in the quality of an ordinary motive for the frescoes of the VII century.

If we compare that statuette of Turkestan with a Japanese statuette of the VIII century we see that under the Chinese influence the realism has crystallized into tradition. The portrait of the conqueror has given place to the general celestial style, and in place of the chained enemy, they sculptured spirits which preserved the form of head and the foreign demoniacal type, and in place of a unique realistic figure, they have artistically grouped grinning faces. The half-boot of leather of Turkestan is transformed into the Chinese felt foot-gear, and then the metal shells sewed to the protected tunic to give a decorative ornament: We notice, also, the arch of the figure.

The recent work of M. Chavannes furnishes a Chinese example of the naturalistic style. We see, in the VI century, appearing upon a fresco, a style entirely new for Buddhist representations. Formerly isolated or placed side by side, the figures are now grouped and superposed in a similar plan. We know by the texts that in the IV century some famous painters, as Ku k'ai tchi, lived, and that in the V century there were already art critics who codified the rules of Chinese art under the form of laws still used to-day. So the tradition imported under the influence of the cultural activity of China, experienced a new and original flowering.

It required 4 centuries of that activity for the primitive narratives upon stone and the Buddhas side by side to bring out the bas-reliefs executed in pursuance of the esthetic rules. Doubtless there still remain many traditional elements in Chinese art, but it was a new spirit which animated it. I allude to that transition style, which, while developing in the epoch of the Tang (600-900) gave place to the full expansion of sculpture.

In the epoch of the Han, human movement was shown in silhouette, but lacked individuality; there were "types" grouped by their costumes. In the epoch of the Wei, the technic was perfected, figures were detached more from the background or were even sculptured in full relief, but the folds and the faces remained angular, conforming to tradition. During the transition period, they sought more picturesque effects, by the composition of groups. The technic destined to give the feeling of depth was perfected by placing the figures one behind the other. But it is only in the epoch of the Tang that the artist really gave life to the stone.

With a power worthy of Michelangelo we see rising out of the stone the *Génies-Gardiens-des-Portes* in an energetic attitude, with a threatening expression, with muscles contracted. The art of the Far East has never produced anything grander. A nation must possess a profound force to produce the creators of such works. So far, in that direction, we know of only the Japanese wooden statuettes of the VIII century which we can admire much; but how tame are these elegant imitations beside the rough prototypes!

It is under the dynasty of the Tang that China reached the apogee of its literature and painting. At that time a large number of Arabs, Nestorians, Jews, and Persians, were already established in China. There was a regular commerce with the West. It was with that foreign immigration that a new spirit seems to have been introduced into China. At that time, little by little, art left the church and became secular. Instead of painting divinities, they took to painting mountains and flowers, valleys, and birds. The old tradition maintained itself without doubt as the base of the later technics, but a national Chinese art was born.

Very interesting is an ancient Buddhist column of Corea. The ornamentation with lotus leaves corresponds to the Greek acanthus leaves and the spirals occur also upon the pottery of Turkestan. That particular form was maintained upon the monumental lamp posts in stone or in bronze, which they erected by hundreds in Japan in the centers of temples and gardens, while we see them only rarely in China, the country of their origin.

It is impossible for us to date the beginning of painting in Greece. The literary documents inform us that before painting with play of light, which alone is maintained in European art, there existed painting in flat tints, the industrial expression of which is represented on painted vases. I believe it possible to show that Okakura, such a wise historian of Japanese art, is right when he claims that Chinese

and Japanese painting were built upon the ancient linear art of Greece. The excavations in Turkestan have furnished us with not a single work of a perfection comparable with that of the productions of the great Greek epoch; but they allow us to comprehend the technic, the conception and the style of the most ancient Greek painting.



FIG. 20. FRIEZE IN BAS-RELIEF, GROTTA OF LONG-MEN,
642 A. D., AFTER A PHOTOGRAPH COMMUNICATED
BY M. CHAVANNES

Thus, during the first 8 centuries A. D. there was a powerful artistic activity in an immense region which extended from Turkestan through China and Corea to Japan. That activity had as a starting point the Greek and Mycenæan cultural area and was afterward developed while incorporating the national peculiarities belonging to each country.



FIG. 21. SASSANOID EWER OF BRONZE

PERSIAN INFLUENCE

Persia had a part in this also. Upon a silk fabric where there is a king on horseback chasing a lion, a Persian arbor vitæ and the repetition of the figure, the whole in a circular frame, we recognize by comparison with the contemporary coins the portrait of the Sassanoid king Chosroës II (596-628 A. D.). Comparable fabrics are preserved in great numbers in Japanese temples. There is no doubt that they have come there through China, and their value is marked in this, that they have been bequeathed to the temples as royal costumes.

An enameled mirror and fine ewer bear winged horses, a motive unknown in Japan. These objects have been preserved in the temple of Nara since 748, when the emperor Shomu died. Everything leads us to suppose that these objects were imported from Persia.

On the other hand, a monumental stone statue, the photograph of which has been communicated to me by M. Chavannes, shows the existence of the Persian style in northern China (Moukden). The horned ornament corresponds exactly to that of the lid of the ewer and the wings are of the same type as those of the horses of the ewer and the cloth. These motives are all types of Sassanoid style, and have not been employed in the Far East at any other epoch.

CONCLUSIONS

In brief, the arts and the technics of the Mediterranean peoples were transmitted into the Far East, adapting themselves, conforming

to the local civilizations. The Ainu of the stone age preserved the forms of their pre-Mycenæan contemporaries. The Mongols assimilated the Mycenæan industrial art, architecture and ornaments, and the conquering Malays carried in directly by sea or by southern China the Cypriot civilization. The influence of the composite style of western Asia and the Scythian style is marked by the art of southern Siberia and central Asia in the representation of men and animals; Buddhism brought in an echo of classic painting and sculpture and thus contributed to the opening of superior forms in the art of the Far East.

O. MUNSTERBERG.

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EXCAVATION ON RHODES.—Professor Kinch of Denmark has been doing some excavating on the island of Rhodes. On the south coast he has found the remains of a town, of unknown name, which he believes dates back to the VI century B. C. The district near these ruins is visited now for water by ships on the way to Egypt, and probably in its day this unknown town was a place of call for ships. A small temple of a type discovered in Crete was uncovered. A long straight street of houses has been opened. It leads on the west to the remains of another temple and of public buildings. To the north was a graveyard, part of which was used exclusively for young children.

Professor Kinch's work at Lindos was most important. Here, near the Castle of the Knights of Malta, he unearthed ruins of buildings connected with the temple of Athene, which stood on the summit of the hill. "A valuable find was a work in high relief depicting the prow of a ship, apparently a monument erected by the Rhodesians to some naval victor; and another monument resembling a theater facade, dedicated to 4 actors. Other evidence was found showing the high respect in which the Rhodesians held the stage. Doctor Kinch claims that he has ascertained the Laocoön group, the work of a sculptor of Rhodes, to date from the second half of the I century B. C."

BRICKS WITHOUT STRAW AT PITHOM. A RE-EXAMINATION OF NAVILLE'S WORKS

I WAS once a member of a caravan into the Desert of Arabia. We set out with our camel train from Suez down the eastern shore of the Red Sea and then into the arid mountain region toward Sinai. It was the month of January, which means in that part of the world a semi-tropical sun to scorch one's head at noonday, and the biting frosts of more northerly climes to nip one's fingers and toes at midnight. At times, the sand storm blew like a sand blast on our faces or drove us under cover of our blankets to ride on in darkness, while the poor camels craned their long necks to the lee side of their huge bodies to protect their eyes.

In this scorching, biting, dusty land every drink of water must be drawn from a barrel carried on the pack camel's back. Water out of a barrel in such a climate is bad enough under any conditions, but the Bedouin make it worse. They know a good thing when they see it, especially if it is good water, and, honest as they are in everything else, they have an incorrigible propensity for purloining good water from the barrel and filling it up again out of some chance brackish spring or, horrors! a camel wallow. Imagine our joy when the dragoman announced that a little way ahead, as we would enter the lime-stone region, there is a spring of good water. We turned aside a little from the trail, rounded the corner of a great rock, and there, spreading out its brightness in the sunshine, was a spring of clear, sparkling, refreshing water. There is nothing like drinking at a spring. All the filters and coolers and pastuerizers in the world are not worth one cool, sparkling spring for a good drink. In fact, we all do like to drink at the fountain, whether of water or of knowledge or of life. We would like to be present in person at every great discovery in the laboratory, among the ruins, at the Pole. Perhaps some of us might make an exception against the Pole in favor of a less chilly place.

When Prof. Edouard Naville, in 1883, laid bare the ruined store city of Pithom, and first we moderns set eyes upon the most spectacular of discoveries in Bible lands, we might all have wished to stand by him for the first thrill of that joy. Next to that experience is the pleasure of a careful re-examination of Naville's work as it may be seen to-day, almost as when he left it.

The Bible account announces that the Israelites built Pithom and Raamses; that they were store cities; that the Egyptians "made their lives bitter with hard bondage, in mortar and in brick;" that the

Israelites, because of their request through Moses, were refused straw for the brick and were compelled to gather stubble from the fields; that as day by day they must go farther and farther to gather stubble, there came a time when the task was impossible, and then came the insurrection; that all this took place in the land of Goshen, where Israel had been assigned a place apart "for every shepherd is an abomination to the Egyptians."

Naville's discovery, as reported by that distinguished Egyptologist, was so unexpectedly exact in its verification of the minute details of the description of Pithom in Genesis and Exodus that the sceptical smiled incredulously, and those of little faith were as much surprised as when their prayers are answered. As the years went by it began to be so much the fashion to speak doubtfully about the value of Naville's work at Pithom that, as is always the case under such conditions, the facts themselves began to be clouded with doubts. While in Egypt recently, I resolved for my own satisfaction and in the interest of both science and revelation to visit the place, and with Naville's description and charts before me to make a careful re-examination of the explorations at Pithom. January 24, 1908, in company with some American friends resident in Egypt, I alighted at the little desert station of Abu Suer a few miles west of Ismailia. We crossed the canal on a raft of barrels. I verily believe that they were Standard Oil barrels. It is useless trying to get away from the Standard Oil Company. Even scientific investigations and Biblical study are thus indebted to it. This is the canal that carried sweet waters to the workers on the Suez Canal, the canal also of the Persians almost 500 years before Christ, and of Rameses the Great and of Seti, his father, who is said to have dug it some 1,500 years before Christ, and there is intimation that still earlier Pharaohs than Seti began this great engineering project. A great heap of ruins, called Tel Maskhuta, lies on the south bank of this canal, a mile from west to east, one-half mile wide at its western end, and running to a point toward the east. The greatest part of this heap of ruins is of Greco-Roman origin, and, while of some archaeological value, of no concern to us in this investigation. On the southern side of this triangle of ruins runs a ridge of sand around a rectangle 200 yards by 220 yards and set with the corners almost to the cardinal points. The curve of the wall of the old fortified city is clearly discernable at a glance, and one may walk about the wall with perfect ease, except that a little village occupies one corner, and that here and there a break marks where anciently was a gateway. There, in the northern corner, is plainly seen the foundation of a great fort, large and massive. Here on the south corner a few fragments of columns and architraves and broken gods mark the location of the inevitable temple. There, in the northern side, the low ground probably marks the place of the barracks and the parade ground, while the southwest side is occupied by the strange underground chambers which the excavation reveals.

Let us follow the identifications in exact order. First, what was the name of this place? Naville found on an inscription at a gateway the name Pa Tum; *id est*, the house of the god Tum. The temple here was erected to him as the patron god of the district. Pa Tum in the Egyptian became through the transliteration of the Hebrew into our Roman alphabet Pithom. The name is settled. This point, I believe, has never been disputed. Naville was looking for Raamses, but he found Pithom.

Second. Who built this city? An inscription of Rameses the Great said "I built Pithom." This statement alone, without further investigation, would not settle the question. Rameses the Great was the great plagiarist of other men's works and other men's honors; but he was a most coarse and clumsy plagiarist and seemed to have only posterity in mind, especially Cook's tourists and other unthinking travelers, and utterly to have disregarded his contemporaries and to have been without a suspicion of the Egyptologists, for his erasures were so clumsily done that a very casual examination detects them. But no erasures are discernable here and no evidence has been found that other Pharaohs conducted great building operations here. There may have been a village here before Rameses' day, probably there was, but Rameses did build this strong city and no evidence to the contrary has appeared, and none is now likely to appear: and until such evidence does appear, Naville's conclusion of 25 years ago that Rameses built Pithom, must stand.

Third. What was the character of this place? Rameses says, "I built Pithom at the mouth of the East:" that is, a frontier city. But a frontier city in a great military empire has certain clearly understood and, indeed, necessary characteristics. It must be in some sense a base of supplies, and a base of supplies must be fortified. And these necessary considerations viewed at this point here at this narrow isthmus between Africa and Asia, a sort of draw-bridge to Pharaoh's castle, a way that opened out to the illimitable and ever alluring East, can mean but one thing, that Pithom was a great fortified store city. And here are these underground chambers, deep, strong, dry, rectangular, and with no communication with each other and entered only from the top, exactly suited for store chambers.

Fourth. Are Egyptian walls laid with mortar at Pithom? Egyptian walls were not laid with mortar. Criticism pointed a warning finger to this Biblical statement about mortar and Egyptologists shook their heads. Mortar was unknown in the laying of Egyptian brick, but Naville reported these walls laid with mortar, and there they are to this day exposed for 25 years to the biting storms of winter in the Delta and still standing clear and strong with mortar three-quarters of an inch thick between the layers of brick. Perhaps Rameses' engineers had gotten the idea in some of his foreign expeditions. Wherever they got it, they did use it here.

Fifth. Are there real traces of the struggle with Pharaoh to be seen in these constructions? The walls stand out clear and distinct.

In many places old walls of Egyptian brick have almost lost their identity and have become incorporated with the surrounding soil but not so here. In some chambers every brick stands out distinctly. That the lower courses of the walls are made of good brick well filled with Egyptian straw and that the upper courses are of Nile mud not mixed with straw is of little significance. Bricks were usually made with straw, and yet bricks without straw are found. But a careful examination of the middle courses of brick reveals a very startling confirmation in detail of the conflict with Pharaoh which Naville found 25 years ago. These middle courses of brick are filled with stubble; *id est*, the stubble left by the reaper, pulled up by the roots, the claw-like marks of which are clearly shown in the bricks; and even weeds and rubbish mixed with the stubble have left their impress. One brick I found, which when cleared of the mortar adhering to it, showed in the center, like the stamp of a mould, the impress of a crow-foot root of a large weed which had been cast into the mould with the mud for the brick, and which had dropped from the side of the brick when it was taken from the mould, leaving its stamp, sharp and clear. These bricks made of stubble found in layers between good bricks with straw and poor bricks with none, is a piece of scientific evidence which harmonizes with startling exactness with the account of the conflict between Israel and Pharaoh.

Sixth. What has this place to do with the land of Goshen? Succoth was a place in the land of Goshen. A black, granite statue of a deceased prince, a high priest, records the prayer that "all the priests should go into the sacred abode of Tum, the great god of Succoth." So Tum, whose temple was here, was the great god of Succoth in Goshen.

At Tel Maskhutah we are on firm historical ground. This was Pithom, the city of Tum; Israel built Pithom, not that it was all the Israelite slaves did, but here the insurrection arose. But Rameses says, "I built Pithom;" and until that statement is distinctly refuted, nothing can separate Israel from Rameses as the Oppressor. Pithom was a store city, "at the mouth of the East;" here are the vaults exactly suited for the store chambers and scarcely adapted to anything else. Contrary to Egyptian custom, these walls were laid in mortar, and for some reason, the builders here did run out of straw and gather stubble and at last made bricks without straw; and all this took place in the land of Succoth, which is in the land of Goshen.

Naville's work at Pithom stands the test of the most rigid examination, and unless future discoveries give us additional facts, his conclusions must equally stand.

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THE HITTITES

THE discoveries of Prof. George E. White in the center of Hittite civilization near Marsovan, in Asia Minor, reported in the *RECORDS OF THE PAST* for November-December, 1908, and that of Miss Dodd, reported in the September-October number of the present year, cannot be fully appreciated without taking a comprehensive survey of the state of our knowledge relating to that long-forgotten people.

Until recently the Hittites were unknown except for the references to them in the Bible, and because of that fact many were inclined to regard them as mythical, and to discredit the Biblical statements respecting them. In Joshua I, 4, the whole country between the Lebanon and the Euphrates is called the "land of the Hittites." In 2nd Sam. XXIV, 6, according to the Septuagint version, the Hittites are said to have a center at Kadish, in Coele Syria, a little north of Baalbeck. Solomon is also said to have imported horses from the "kings of the Hittites." The repute in which they were held appears in 2nd Kings, VII, 6, where the affrighted Syrians think that the king of Israel has hired against them "the kings of the Hittites." Thus from these references it would seem that the Biblical writers looked upon the Hittites as a powerful race occupying an indefinite region to the north of Palestine.

At the same time there were smaller colonies of them farther south, intermingled with the Israelites themselves. Abraham bought his burial place at Hebron of "the children of Heth," which is another way of designating the Hittites (Gen. X). Ephron, from whom he bought it, is specifically called a Hittite. Esau is also said to have married two Hittite wives (Gen. XXVI, 34; XXXVI, 2). Bathsheba, the mother of Solomon, was originally the wife of "Uriah the Hittite" (2d Sam. XII). Yet with all these references to the Hittites in the Bible there had been no notice of them by secular historians. It was only when the inscriptions on the monuments of Egypt and Babylonia were dug up and deciphered that the Biblical accounts were confirmed. As time has gone on, however, the Hittites have loomed up into greater and greater prominence, until now they are seen to have made no small contribution to the classic civilization which sprung up in due time in Greece and the western provinces of Asia Minor.

From the Egyptian monuments we learn that in B. C. 1470 Thothmes III, a Pharaoh of the XVIII dynasty, encountered the "Greater Hittites" on the banks of the Euphrates and, after conquering them, received large tribute—8 rings of silver of 400 pounds

weight each, and a "great piece of crystal." Seven years later tribute was again sent to Egypt from "the king of the Greater Hittite land." From the Tel el-Amarna tablets we learn that a little later the Egyptian kings were repeatedly called upon to oppose the Hittite kings, who led their forces southward through the passes of the Taurus and harassed the allies of Egypt who occupied northern Syria. They even forced themselves into Palestine. In B. C. 1343 the great Rameses encountered the Hittite army at Kadish, in Coele Syria, and with difficulty escaped with his life. Six years later a treaty was formed between Pharaoh and the Hittite king and he gave his daughter in marriage to Rameses.

From the Assyrian monuments of about B. C. 1100 we learn that there was a number of Hittite states to the west and north, of which Carchemish was the wealthiest and most important. Later the Assyrians often referred to all the people of Syria and Palestine as Hittites, thus bearing testimony to the prominence which they assumed as opponents throughout the west.

Within the last few years Hittite sculptures and inscriptions have been discovered from Hamath in Syria and Lydia in Asia Minor all the way to the Black Sea. In the pass of Kara-bel, near Sardis, there are the figures of two Hittite warriors accompanied by Egyptian hieroglyphs, which were thought by Herodotus to be Egyptian, so early had the traditions of the Hittites faded away. But the great center of this forgotten people was at Boghaz-Keuy, 75 miles southwest of the American Mission station at Marsovan. Here, as Sir William Ramsay has pointed out, "the ancient high roads which intersected Asia Minor and led to northern Syria met, indicating that this was the center of an empire which once extended from Kadish on the Orontes to the shores of the Ægean." Here in one place the forms of various deities are carved upon the rocks, while on the faces of other rock walls religious processions are depicted in bold relief, and, as Miss Dodd shows by the photograph in our last number, a real Amazon appears in well formed sculpture on one of the gateways.

Unfortunately no clue to the language of the Hittites has yet been discovered. Their inscriptions are written in both directions—from left to right across the tablet and then back from right to left. Curiously enough, this was the original method of writing among the Greeks, leading to the suggestion that there is a connection between the Hittite civilization and that of Greece. Indeed, the mural crown sculptured on the heads of some of the goddesses at Boghaz-Keuy is of the same pattern as that common in Greek art, and the celebrated Lions over the gateway at Mycenæ are thought to be Hittite rather than Babylonian.

The Hittites are represented on the Egyptian monuments as having yellow skins, black hair and eyes, receding foreheads and receding chins—a type of face still seen in some parts of Cappadocia. Their boots were made with upturned ends, such as were required amid the snows of the northern mountains. Habit, however, seems

to have preserved the fashion in the warmer climate of central Syria. Often they are represented with their hair braided together behind in a pigtail. From these characteristics it is thought by some that they were a Tartar race. But, as already said, their inscriptions are as yet untranslated and unread. We anxiously wait for some clue to turn up, like the Rosetta stone, or the bilingual inscriptions of Persepolis and Behistun.

We would, therefore, repeat the suggestion, made in a previous number, that funds be provided so that Professor White and his associates at Marsovan can explore some of the many mounds which dot the plain about them, and which are so evidently of Hittite origin, and so closely connected with the great center partially explored at Boghaz-Keuy. The economy of this proposition must commend it to any one who considers the situation. These men are on the ground, and could do the work as an *avocation* while getting rest from their ordinary labors. They know the people of the vicinity and their language, so that with a small fraction of the expense of fitting out a special expedition from this country, they could do the necessary work, and help to solve the most puzzling and important problem that is awaiting archæologists the world over.

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CHARLES ELIOT NORTON MEMORIAL LECTURE FUND.—Prof. Francis W. Kelsey, president of the Archæological Institute of America, received, in October, a letter from Mr. James Loeb of New York City, part of which we quote:

"I take pleasure in informing you that I have instructed my secretary to pay over to the treasurer of the Archæological Institute of America on October 21, \$20,000 of the 5 per cent bonds of the United States Steel Company for the endowment of the 'Charles Eliot Norton Memorial Lecture Fund.'

"The annual income is to be paid over as an honorarium to one or more distinguished archæologists for a course of lectures to be delivered for the affiliated societies of the institute. * * * The experience of past years has amply demonstrated that a constantly growing public eagerly avails itself of the opportunity which these lectures afford to keep abreast of the latest researches of a science which is constantly increasing our respect for the achievements of antiquity. I deem it a privilege to endow the institute with a fund that will enable it, for all time, to help, not only its members, but also the general public, to enjoy the fruits of future archæological discovery."

BOOK REVIEWS

AMURRU, THE HOME OF THE NORTHERN SEMITES¹

FOR a number of years Assyriologists have practically all been claiming more and more that the culture of Israel was borrowed from Babylonia. In fact, their assertions have carried them to such lengths that they are known as Pan-Babylonists. Although their conclusions have appeared improbable to many, a champion with the requisite knowledge and courage to combat the prevailing opinion has been lacking until Dr. Albert T. Clay came forward. In his book on *Amurru, the Home of the Northern Semites*, he has struck a well-directed blow at those who would have us think that Babylonia was everything, and that Israelitish history is merely revamped Babylonian and Assyrian myths. It is fortunate that this champion possesses the ability, unfortunately so lacking in many scientists, of writing English that can be understood by the uninitiated, and expressing himself so concisely that the busy man can find time to read.

Dr. Clay has divided his book into two parts. In the first, embracing 82 pages, he gives a remarkably lucid statement of the position of the Pan-Babylonists which he attacks and a plain statement of his position and the reasons therefor. The second part is reserved for a more technical discussion of the subject.

"Without attempting to determine the ultimate origin of the Semites," Dr. Clay "holds that every indication, resulting from his investigations, proves that the movement of the Semites was eastward from Amurru and Aram (*i. e.*, from the lands of the West) into Babylonia. In other words, the culture of the Semitic Babylonians points, if not to its origin, at least to a long development in Amurru before it was carried into Babylonia" (p. 13).

If Babylonian culture prevailed in Canaan at the time of the Exodus, as Delitzsch claims, "Should we not expect the chief deity of the Babylonians to figure prominently in the West?" Dr. Clay inquires. And further: "If the influence of the Babylonian Religion upon the West were as great as is asserted by scholars, should we not expect to find in the early literature of that land, for instance, the name of *Marduk*, who for half a millennium prior to the Exodus had been the head of the Babylonian pantheon? This name was used extensively in the nomenclature,—the name above all names, the god that had absorbed

¹*Amurru, the Home of the Northern Semites*, a Study showing that the Religion and Culture of Israel are not of Babylonian Origin. By Albert T. Clay, Professor of Semitic Philology and Archaeology, University of Pennsylvania; pp. 217; map. \$1.25 net. Philadelphia: Sunday-school Times Company. 1909.

the attributes and prerogatives of all other gods. Surely, if the influence was so extensive upon the West, we ought to find the name Marduk figuring prominently in the Amarna letters, in the Ta'anek inscriptions, in the Cappadocian tablets published by Delitzsch, Sayce and Pinches, and in the portions of the Old Testament belonging to the early period. But, with one exception in the Amarna letters, where is the name? The argument *e silentio* is unscientific, but this silence is at least most significant" (pp. 36-37).

Regarding the Creation Story Dr. Clay concludes: "Scholars are mistaken in assuming that there has been a complete transplanting of the Babylonian myth to the soil of Yahwism, or that the author of the biblical story had before him not only the cosmological system of the Babylonians, but that particular form which has been incorporated into the Assyrian epic. On the contrary, in the light of these discussions, it seems reasonably certain that the Western Semites who emigrated to Babylonia carried their tradition with them to that land, which in time was combined with the Sumerian, resulting in the production discovered in the library of Ashurbanipal" (pp. 53-54).

That the Sabbath of the Hebrews did not come from Babylonia, he shows conclusively in his chapter on that subject. No record of a rest day for the *people* every seventh day has been found in Babylonian inscriptions. Although the seventh, fourteenth, twenty-first, twenty-eighth and nineteenth days are festival days, the average amount of business seems to have been transacted on those days (p. 59).

The Antediluvian Patriarchs are next considered and it is shown that they are not transplanted mythological Babylonian kings.

The biblical story of the flood seems to have been of western Semitic origin in spite of the numerous points of resemblance to the Babylonian. "We may conclude that the predominant element in this and other parts of the Gilgamesh epic are connected with the sun-deity and the land of the Western Semites, and that the origin of the Semitic portion of the epic, which doubtless includes those features which are common to the biblical narrative, goes back to a West Semitic narrative, which is also parent to the biblical version."

The second part of the book, as has been stated before, deals with the more technical features of the discussion and is primarily for the benefit of the special student, yet, like the long lists of names in Chronicles, this part contains much interesting matter for those who are not versed in Semitic or Cuneiform writing.

The appendix takes up Ur of the Chaldees; the derivation of the name Jerusalem which seems to the author to be from the Western Semitic rather than the Babylonian; the name of Sargon, King of Akkad; the name of NIN-IB; and finally Yahweh.

Although the whole book emphasizes the Western Semitic influence, Dr. Clay states that it is not his "desire to attempt to minimize the influences from the Tigro-Euphrates valley upon the culture of the neighboring nations in general, including Israel." Unquestionably

such a civilization as the Sumerian, which, as far as we know, was highly developed as early as the V millennium B.C., and also the Assyro-Babylonian, exerted an influence upon neighboring peoples. What that influence was upon the center of the Semites from which the Semitic Babylonians came, of course, is a different question. It is well to bear in mind that while the Sumerians, on the one hand, greatly influenced the Semitic culture which was brought into the country, the Semites, on the other, had a great influence upon the Sumerians—not so much in their art as in their culture in general, for the Semite seems to have had little art worth imitating" (p. 42).

To all who are interested in Biblical history we would recommend this volume which marks the beginning of a new era in the discussion of the relations of the early empires of the East and their mutual influence.

FREDERICK B. WRIGHT.



THE ANCIENT GREEK HISTORIANS¹

GREEK historians were the first to break away from the Oriental custom of merely chronicling human events and to apply criticism. "That means they originated history" (p. 1). In view of this a study of the early Greek historians is specially interesting and instructive. In the first six chapters, each of which represents one of the Lane Lectures delivered at Harvard by Dr. J. B. Bury, he considers the Greek historians from Hecataeus to Polybius. In the last two chapters he considers the influence of the Greek on the Roman historians and the views held by the ancients regarding the use of history.

The credibility of Homer and Hesiod was first arraigned by Xenophanes, an Ionian philosopher before 500 B. C. (p. 10), but the first prose composition on Greek history was by Hecataeus, unless the existence of Cadmus, the Milesian, be proved. Hecataeus was primarily a geographer and one of the first prominent ones. Concerning his history of Hellas he wrote, "What I write here is the account which I consider to be true. For the stories of the Greeks are numerous, and, in my opinion, ridiculous." Nevertheless, it took many years to completely eradicate even the most incredible of the ancient mythological stories from the historical works.

The early historians were not archæologists, and made practically no attempt to determine dates or facts from inscriptions, even when they were quite readily available. In fact, even current events were incorrectly chronicled. "One case, which we can control, will illus-

¹*The Ancient Greek Historians* (Harvard Lectures), by J. B. Bury, Litt.D., LL.D., pp. x, 281. 1909. Price, \$2.25. The Macmillan Company, New York.

trate how dangerous the procedure of Hellanicus was. If he had consulted a certain inscription, which we are fortunate enough to have recovered, he could have found that several military events which he chronicled occurred in the same archonship, corresponding to the latter half of 459 B. C., and the former half of 458 B. C. Ignorant of this authentic evidence, he distributed these events over three archonships. Yet these events must have happened within his own lifetime" (p. 30). Dr. Bury does not believe that any clear or definite chronicle begins before 445 B. C., the year of the Thirty Years' Peace.

Herodotus attempted to draw the "line at what is physically impossible," but his philosophy was not strong enough to make a definite division between the divine and the human. He also was easily deceived by guides, whose characteristics seem to have changed little during the last 2,500 years, when he traveled in foreign countries. Yet "we must give full credit to Herodotus for having recognized the principles of criticism, which I have indicated, though his application of them is unsatisfactory and sporadic. They are maxims of permanent validity; properly qualified they lie at the basis of the modern developments of what is called historical methodology. But, notwithstanding the profession of these axioms of common sense, he was in certain ways so lacking in common sense that parts of his work might seem to have been written by a precocious child. He undertook to write the history of a great war; but he did not possess the most elementary knowledge of the conditions of warfare" (p. 71).

Thucydides, the next historian considered, had the great advantage of being well trained and versed in military affairs. Concerning the long involved passages in the works of Thucydides Dr. Bury infers that "when Thucydides writes in the unnatural style, he intends the reader to understand that he has here to do with the author himself—that the author is making points. When he writes in the natural style, he is producing documentary evidence. The speech of Pericles on the eve of the war is virtually a document" (p. 114).

Of the generation of Greek historians after Thucydides, Xenophon is the only one "familiar to posterity," a fact which is due to the preservation of his works more than to their real value. Dr. Bury considers him as the least meritorious of the three historians of his generation, of which we have any knowledge. "In history, as in philosophy, he was a dilettante; he was as far from understanding the methods of Thucydides as he was from apprehending the ideas of Socrates. He had a happy literary talent, and his multifarious writings, taken together, render him an interesting figure in Greek literature. But his mind was essentially mediocre, incapable of penetrating beneath the surface of things. If he had lived in modern days, he would have been a high-class journalist and pamphleteer; he would have made his fortune as a war correspondent; and would have written the life of some mediocre hero of the stamp of Agesilaus. So

far as history is concerned, his true vocation was to write memoirs. The *Anabasis* is a memoir, and it is the most successful of his works. It has the defects which memoirs usually have, but it has the merits, the freshness, the human interest of a personal document. The adventures of the Ten Thousand are alive forever in Xenophon's pages" (pp. 151-152).

The seventh chapter shows the marked influence which the Greek had on the Roman historians. "We may, indeed," Dr. Bury remarks, "say that from the beginning of the Empire the distinction between Greek and Latin historians has only a subordinate significance. In studying historical literature from the time of Livy and Dionysius of Halicarnassus, Greek and Latin writers must be considered together" (p. 233).

In the last chapter the views of the ancients concerning the use of history is considered and its development to a science traced.

"As a science," Dr. Bury concludes, "history is disinterested. Yet the very idea of development, which led to the conception of history as a science, has enhanced its interest for mankind. So far, indeed, is the Greek view that history has a value for life from being exploded, that the bearing of the past on our mental outlook, on our ideas and judgments, on the actualities of the present and the eventualities of the future, is increasing more and more, and is becoming charged with deeper significance. The Hellenic conception of history as humanistic is truer than ever" (p. 259).

FREDERICK BENNETT WRIGHT.



THE ROMAN ASSEMBLIES²

NO ADEQUATE conception of the breadth and value of this work in "monographic form," by Dr. George W. Botsford, on the *Roman Assemblies* from their origin to the end of the Republic, can be given in a short review. In his preface he states that: "This volume is the first to offer in monographic form a detailed treatment of the popular assemblies of ancient Rome. Necessarily much of the material in it may be found in earlier works; but recent progress in the field, involving a reaction against certain theories of Niebuhr and Mommsen affecting the comitia, justifies a systematic presentation of existing knowledge of the subject. This task has required patient labor extending through many years. The known sources and practically all the modern authorities have been utilized. A determination to keep free from conventional ideas, so as

²*The Roman Assemblies*, from their Origin to the End of the Republic. By George Willis Botsford, Professor of History in Columbia University; pp. x, 521. \$4 net. New York: Macmillan Company. 1909.

to look at the sources freshly and with open mind, has brought views of the assemblies not found in other books. * * * In general the aim has been to follow a conservative historical method as opposed to the radical juristic, to build up generalizations on facts rather than to estimate sources by the criterion of a preconceived theory. The primary object of the volume, however, is not to defend a point of view, but to serve as a book of study and reference for those who are interested in the history, law and constitution of ancient Rome and in comparative institutional research."

The mass of detail in the text and footnotes indicates a vast amount of work and a sufficient ground for his conclusions. In the *Summary* he reviews the history of the comitia from its origin in the "simple gathering (contio) of the primitive folk" to its highest development and then to the fall of the Republic. In conclusion he says:

"The comitia had filled a large place in the history of the state. They were the chief factor of constitutional progress and of beneficent legislation. Their development and decline involved the prosperity and the ruin of the republic. For the world they have a higher value. The tribal assembly, supporting the plebeian tribunate, was the storm center of long, heroic struggles for human rights. The fact that it championed this cause, that it met with some success in the conflict, that a Gracchus deemed it worthy to undertake the social regeneration of the world, has given the institution a universal and a permanent interest."

Besides the voluminous references, in the footnotes, to authorities, there is an extended bibliography. The value of this work to students of this subject can hardly be overestimated, for it is a veritable mine.



PALÄSTINA UND SEINE KULTUR IN FÜNF JAHRTAUSENDEN³

In this small volume Dr. Thomsen gives a resumé of the work carried on in Palestine by different organizations and individuals who have been excavating there. It contains numerous illustrations and a very short bibliography. The volume is one of the series *Aus Natur und Geisteswelt*, published by B. G. Teubner, of Leipzig.

³*Palästina und Seine Kultur in fünf Jahrtausenden*; nach den neuesten Ausgrabungen und Forschungen dargestellt, by Dr. Peter Thomsen; pp. 108; 36 illustrations. M. 1.25. Leipzig: B. G. Teubner, 1909.

EDITORIAL NOTES

ITALIAN ARCHÆOLOGICAL INSTITUTE AT ATHENS.

—"An Italian Archæological Institute has been established at Athens, under the directorship of Dr. Luigi Pernier."

PLANS FOR LECTURES IN THE OLD PALACE, SANTA FE.

—The rooms in the Old Palace at Santa Fe recently vacated by the post-office are to be transformed into an auditorium where it is planned to have each week a lecture and meeting at which archæological subjects will be discussed.

THE GREAT MOUND AT MOUNDSVILLE, W. VA., TO BE PRESERVED.

—The general increase in a widespread interest in archæological monuments is indicated by the purchase of the giant mound at Moundsville by the state of West Virginia. The board of public works of the state has made part payment of the \$20,000 to be paid for it, and now holds the deed.

LARGE "DUGOUT" IN THE HULL, ENGLAND, MUSEUM.

—In May of 1909 the Hull Municipal Museum received what is probably the largest prehistoric object in any museum in Great Britain. It is a "dugout" found at Brigg, Lincolnshire, in 1886—a most interesting example of early shipbuilders' art. It was fashioned from a solid oak tree which was 18 or 20 ft. in circumference. It measures 48 ft. long, 4 ft. 4 in. wide, and 2 ft. 9 in. deep. It is certainly pre-Roman and probably dates back about 2,000 years.

SAYCE ON THE HITTITES.

—In an article in the Royal Asiatic Society's *Journal*, Professor Sayce publishes fragments of 8 cuneiform tablets from Boghaz-Keuy and translates them on the hypothesis that they are in the Hittite language. "In the course of the article Professor Sayce gives the following list of Hittite divinities, viz, Umma, Khaba and Khebe, 'Khebe of the land of Kas,' Zabimim, Alkhisuwa, Argapa, Khattu, Nanni, Teligubbinus, and Sandes, besides Gula, Makh, Zamama and Bel, which, he declares, the Hittites borrowed from the Assyrians. This last admission opens the door to a great deal of controversy, since, if the Hittites were in the habit of borrowing deities from the neighboring populations, it is not impossible that the appearance of the Vedic gods among the Mitannians might be due to some ancestors of the present Persians coming, as we used to be taught, from India." [*Athenaeum*, London.]

REMAINS OF ROMAN INK.—At Haltern, in Westphalia, near the site of the Aluso fortress erected by Drusus in 11 B. C., there was found recently a bronze vessel containing a dried black mass, which Professor Kassner declares is Roman ink. The mass consists chiefly of soot and tannate of iron. Small quantities of other substances are also present, probably mostly accidental impurities, but some are due to the chemical action of the ink on the bronze vessel. There is an aromatic substance present, suggesting that the ink was imported from Italy, where perfumed ink was used commonly.

MORGAN'S PROPOSED NEW DIVISION OF THE AGES.—M. J. de Morgan has just published a new volume, *Les premières Civilisations*. He begins with Pliocene times and ends with Alexander's empire, admitting many gaps in his narrative. He advocates dropping such phrases as "Stone age" and would substitute a new unit of division which he calls *Etat*—inadequately translated by the English word *State*—as *Etat Primordial*, *Etat Neolithique* and *Etat Metalurgique*, which latter he subdivides into *Phase Eneolithique*, *Phase du Bronze* and *Phase du Fer*.

ANNUAL MEETING OF THE BRITISH SCHOOL AT ATHENS.—The Annual General Meeting of the British School at Athens was held in October, when the Director, Mr. R. M. Dawkins, gave some details of the year's work, especially at Sparta, where the School has laid bare the temple of Artemis Orthia. Mr. Dawkins contends that the goddess should be called Orthia only. She "seems to have been a nature deity brought with them by the invading Dorians, and is depicted on the carved ivory and bone plaques discovered during the explorations as a winged woman, fully draped and 'supported,' in heraldic phrase, by two animals, which are sometimes lions, and sometimes aquatic birds resembling swans."

EXPLORATIONS ON MT. AUXOIS.—Recent excavations on Mt. Auxois, Department Semur, France, have revealed a series of novel finds. "They include two bronze chaldrons, gilt both on their exterior and interior, and bearing a simple and primitive ornamentation. Further, 8 silvered vases of varied shape and design, of which one has a fish chiseled round its center. They are supposed to have been used in the worship of some local deity. They were accompanied by some Gallic coins, but Roman ones were absent—an unusual fact—and it is therefore believed that they are the product of the Alesian bronze industry of which Pliny speaks. Their interest lies not only through their connection with a religious cult but as evidence of a Gaulish art existing prior to the Roman Conquest."

TREASURES FOUND IN THE SEA.—Five miles from the Tunisian port of Mahdia part of the cargo of a ship, wrecked some

2,000 years ago, are reported to have been recovered. Sponge divers came upon the hull of the vessel in the course of their diving. M. Merlin, of the Society for the Preservation of Tunisian Antiquities, undertook the task of bringing the finds to the surface. The vessel appears to have been about 97 by 26 ft. The finds included many marble and bronze sculptures. There were 60 white columns, some Ionic and some Corinthian, as well as a number of carved blocks. A bronze Eros found is thought to be a replica of one by Praxiteles. Other pieces are a statuette holding a lamp and a head of Dionysus on a Hermes pillar bearing the sculptured name, Boethus of Chalcodon, mentioned by Pliny and others.

SCHOOL OF ANTHROPOLOGY OF PARIS.—The School of Anthropology of Paris began its winter session on November 3. "Professor Capitan is giving a detailed study of industries and art during the Palæolithic and Neolithic periods; and Prof. A. de Mortillet a study of ancient and modern primitive industries, ornaments and jewels. Professor Zaborowski, who deals with the origin of nations, languages and customs, devotes his course especially to the Slavs of the Balkan, the Greeks and the Turks. The other professors (of ethnology, zoological anthropology, physiological anthropology, sociology, anthropological geography, Oriental proto-history, general ethnology, embryogeny and anatomy) have selected important branches of their respective subjects for their teaching. Five series of *conferences* are arranged, among them a series of 5 by M. Henri Pieron on psychometric methods applied to sensorial and intellectual examination."

MINNESOTA HISTORICAL SOCIETY.—The Minnesota Historical Society was organized in 1849, since which time it has been engaged in collecting and preserving historical data concerning Minnesota and the Northwest. What they have done in this line is shown by the following extract from a circular sent out by the Society:

"The Library now comprises 94,686 books and pamphlets, including 8,216 bound volumes of newspapers. The number of individual portraits and historical pictures displayed in the rooms of the Society is about 600, besides 40 group pictures, which comprise about 1,500 portraits. The museum has 30 large cases filled with historical and archæological relics. All these very valuable collections of the Historical Society are in the beautiful and fireproof new capitol, excepting the greater part of the portraits, which are in the old capitol, the rooms there formerly used by the governor having been allotted to this Society as a State Portrait Gallery."

MANUSCRIPTS FOUND WITH A MUMMY.—In the course of excavations at Drah abul Negga, Lord Carnarvon found an ostrakon which M. Maspero thinks was a small library buried with the mummy for the delectation of the dead in the underworld. It contains the "be-

ginning of a ghost story known from similar fragments of the same kind and described as taking place in the reign of King Kamosis or Ka-mes of the XVII dynasty, whose full protocol it gives for the first time." The design of a draught-board follows, which was supposed to reproduce in the next world the apparatus of the game for the use of the spirits of the dead; also the Teachings or Maxims of Ptah-hotep, known to Egyptologists as Papyrus Prisse. M. Maspero dates the ostracon from the XX dynasty, but the text of the Teachings as given here differs so widely from that of the Papyrus Prisse that it can hardly be copied from it. This may be due to carelessness on the part of the undertaker or to the egotism of the scribe, who perhaps tried to write them from memory.

ARCHÆOLOGICAL REMAINS IN GUERRERO, MEXICO.

—Prof. William Niven, of New York City, who has been exploring in the State of Guerrero, Mexico, is reported to have made some interesting discoveries. On all ridges were located prehistoric ruins. At a point called Cacahuatla two trachyte columns, $4\frac{1}{2}$ ft. by 18 in. were found side by side. A little less than 1,000 ft. higher up the hill were the ruins of a building over 100 ft. long. Possibly these columns were used as altars. Several blocks of diorite 14 in. square were scattered around. The ground was strewn with fragments of broken pottery, but the brush and undergrowth was so dense that only a small part of the locality was explored. The evidence seems to point to an ancient population of some millions of people, though what they could have lived on in such a broken country it is hard to conceive, unless it be supposed that a great seismic disturbance has changed the topography. Corn seems to have been a staple article of food, for metates and pestles are found in nearly every ruin, but there hardly seems to be enough soil to raise a sufficient quantity. Water, also, is rather scarce.

RECONSTRUCTION OF THE ARA PACIS.—It is proposed to reconstruct the Ara Pacis in 1911 in connection with the semi-centennial of the proclamation of Rome as the capital of United Italy. The remains of the altar stand under the Fiano palace, where there is not room for the reconstruction, so some other place will have to be chosen. As many of the original blocks as possible will be used, and the others reproduced. The original blocks are scattered in half a dozen different localities. Three panels are the property of the French government, two being in the Villa Medici and the third in the Louvre. Fifteen huge blocks were found in 1568 and sent to the Uffizi in Florence; each was cut in two to facilitate transportation. Another block was cut, half going to the Vatican and the other to a stonecutter who cut a funeral inscription on the blank side and set it up in a Jesuit church. It was later removed to the National Museum in the Baths of Diocletian. It is thought that no essential part is lacking, and it is

hoped that the altar can be reconstructed almost entirely of the original pieces, as both the Vatican and the French government seem disposed to return their portions.

M. FOSSEY ON THE HITTITES.—M. Fossey, in the *Journal des Savants*, makes it clear that he "now regards it as beyond doubt that the Hittite people formed part of the Indo-Germanic family and the Aryan group, and he appeals in aid of this view to the Mitannian text found by Dr. Winckler at Boghaz-Keuy, in which the gods [some of them Vedic gods] Varuna, Mithra, Indra, and the Nasatya (which appears to mean the Acvins or Twins), are invoked as witnesses to a treaty. He would divide the Hittite people into two nationalities, the Mitannian and the Hittite, and he considers that the Hittite kings conquered or otherwise absorbed the kingdom of Mitanni shortly after the accession to the Egyptian throne of Amenophis IV. Dush-ratta, king of Mitanni, who is known to us from Egyptian history, he holds to be of the race which originally introduced the Vedic gods into Asia Minor, and he speaks of them as coming probably from the north of what is at present Armenia. This race which he calls the Khairi, he identifies with the Horites of the Bible, and he considers generally that the facts support the theory put forward by Professor Prasek of an Aryan race coming from Russia and migrating westwards until on the western shore of the Caspian Sea it split into two hordes, one which settled in Asia Minor, and the other in Persia. The earliest date of this migration he puts at 1900 B. C., and thinks it was followed by another 900 years later; while its influence upon the peoples of Syria and Palestine was of course immense. It may be mentioned incidentally that the effect of all this is to restrict considerably the part played in the history of the East by the Semitic race."

EXHIBIT OF PERUVIAN RELICS IN LONDON.—Mr. T. Hewitt Myring has taken to England a collection of antiquities belonging to the Chimú period, antecedent to the time of the Incas. His finds were derived from a single tumulus or group of interments. "It contains a vast number of objects of ceramic art of great antiquity and beauty and in full preservation; and it represents for the instruction of the anthropologist the types of features of the Chimú race, and throws light on their manners and customs."

This collection strengthens the evidence already possessed of an advanced stage of civilization in Peru before the advent of the Incas. Many of the forms are similar to those of later ceramics, the execution and artistic idea are often superior. "Some of the heads are finely modeled, show marked features, evidently drawn from life, and present the characteristic lineaments of the race. Others indicate a tendency to conventionalism." Similarly with animal figures, some are fanciful and conventional and others well modeled. In some cases surface coloring is combined with modeling. "Thus the head of a bird or other animal or of a man is modeled in relief, but the remainder

of the body and the accessories are painted on the surface of the vessel, producing a curious, but not ineffective result."

Many specimens show the characteristic head-dress of a god, some undoubtedly of the sun-god. "The resemblance to similar symbolic representations in ancient Mexico is striking, and further investigation may serve to show correspondences between the faiths of Central and Southern America."

Mr. Myring puts forward the theory that the great variety and number of objects found as compared with the small number of interments may be accounted for by a custom of the friends of the dead man giving him presents which would be useful to him in a future state.

BURGH CASTLE.—Burgh Castle, overlooking the estuary at the junction of the Waveney and the Yare, covers about $4\frac{1}{2}$ acres. It is probably the Garianonum of the "Notitia Imperii." The walls, on 3 sides of a rectangle 640 by 370 ft., are 14 ft. high and 9 ft. thick, spreading to 11 or 12 ft. at the bottom; they are built of flints embedded in mortar, with a facing of squared flints, bonded into the walls by course of bricks. The east wall is strengthened by 4 solid circular towers, 15 ft. in diameter.

In 1850 and 1855 Mr. H. Harrod carried on some investigations, but no definite work has been done since. The land is under cultivation, so such relics of Roman days as potsherds, animal bones, and horses' teeth have been found incidentally. A few coins have also been turned up, but not much of any consequence.

Within the last year, however, Mr. W. A. Dutt has picked up some interesting fragments. He writes in the *Antiquary* for June that a short distance outside the south wall he found "A fragment of red-painted ware, nicely ornamented with a design consisting of lines and notch-like indentations. Returning to the same spot a few weeks later, I was greatly surprised to find that since my previous visit some fowls had scratched up a similar piece of ware; and on putting the two pieces together, I found they fitted exactly, and belonged to the same vessel. Among the Romano-British ware in the British Museum there is a bowl ornamented with almost precisely the same pattern as this Burgh Castle example, and it is described as being Samian ware; but I believe that both my specimen and that in the British Museum are attempts made by the British potters to imitate Samian ware." Below the camp a portion of a wheel-turned cinerary urn with design similar, but more rudely executed, was found. A few fragments of dark brown and greenish pottery with patterns in white were also found. They may be pieces of the well-known Durobrivian ware, but the pieces are too small to recognize the style of the ornamentation.

ROMAN FORT AT ELSLACK.—In May of this year excavations were recommenced at the Roman fort at Elslack, near Shipton,

under the direction of Mr. May. It belongs to the same class as those at Ribchester, Ilkley, and Bainbridge, and probably belongs to the same period, *i. e.*, about the beginning of the III century A. D. It measures 200 yards by 160 and probably had 4 gateways. A trench cut from north to south disclosed the ditch constructed as an outwork for the older rampart, the Roman road, the road of Severus, planted on the original ditch of the earlier fort and the rampart of the earlier fort. The most interesting feature is the two distinct ramparts. Pottery and the skull of a cow were found. On the eastern side of the fort, just below the surface, was a "flagged floor, probably the floor of a house or a granary, though evidences of burnt clay and a stone blackened by contact with fire suggest its probable use as an armory." Two of the corners of the fort have been cleared of earth, showing that they were rounded and the foundations were "stepped." In the northwest corner 6 courses of stone are in position. The walls seem to have been 16 or 17 ft. high and 9 ft. thick. Both limestone and sandstone were used. Ditches were dug as auxiliary means of defense. The western side is most strongly fortified.

On May 21 a coin of the reign of the Emperor Valens, about A. D. 378, was found. Later a coin of Constantine the Younger, who died in 337 A. D., was brought to light. Considerable pottery has been discovered. Some is Samian ware, but there is also some black British ware.

The investigations seem to point to two Roman occupations of the site. "There is evidence of the existence of two forts, an earlier one with a rampart of clay, and a later one of stone, the foundations of which, at all events on two sides, have been set in the ditches of the earlier fort. The gateways on the south face of both the earlier and the later erections have been disclosed in close proximity to each other and afford facilities for comparison of the two styles of construction such as will not be met with elsewhere in this country."

MITHRAIC STATUETTE FROM EMIR-GHAZI, ASIA MINOR.—Sir William Ramsay reports seeing a Mithraic statuette found at Emir-Ghazi some years ago, but only recently brought to the notice of archæologists. It had been found in a stone sarcophagus and sold to an Armenian dealer in Konia, where Sir William Ramsay saw it. He made a trip to Emir-Ghazi to investigate the matter further. No trace of any pieces of the sarcophagus, which had been broken open, could be found. Whether there were any figures carved on the stone box or not, no one would tell. Two Hittite inscriptions are hidden somewhere in the village, but the people will not give any information as to their whereabouts.

The statuette represents a "Roman soldier standing with his head slightly thrown backwards, so that the eyes look a little upwards. The work is rude, but not devoid of spirit. The soldier has an air of pride and exultation, which (if intended by the artist) is very successful and in accord with his surroundings. He stretches out his arms

and lays his right hand on the head of a half-length female form (devoid of attributes)" who is kneeling on the ground "while he rests his left hand on a short column whose top ends in a lion's head." He wears a cuirass ornamented with a Gorgoneion head, under which is a flying goddess. He has whiskers, close cropped beard and a long moustache. "I take him to be," says Ramsay, "a 'lion' in the mystic initiation of Mithras; and his air of pride as he lays his hand on the lion's head, intimates his claim to this rank in the ritual. He is about 11 in. high, and the column and goddess about 5 or 6 in." The body is possibly a little too slender for the height.

"The modern village [Emir-Ghazi] is almost certainly not the early site, though it was probably a Roman site. We have examined and ancient site," he continues, "on Arissama Dagh, near the east end; we picked up Greek, Hellenic and Roman pottery on the site, but could not find a scrap of early ware; yet the story is that all the Hittite stones have been brought from this site." Early pottery is absent from the Kizil Dagh fort, although Hellenic ware is abundant. The gate of the fort bears a Hittite inscription, and there is a Hittite monument with 3 inscriptions on the hillside near by.

ROMAN CAMP IN WALES.—Prof. R. C. Bosanquet of Liverpool, on behalf of the Liverpool Committee of Excavations and Researches in Wales and the Marches and a local society, has been excavating the Roman camp at Caersws, on the banks of the Severn. Previous fitful attempts had revealed much Roman ware and other articles. Deep trenches have now been cut through at the southeast angle, revealing a huge mound of clay faced by red sandstone, and containing great postholes, into which were put young oak trees, on top of which the watchman's tower was set. "Portions of green glass and pottery have been found in the clay. The main road into the camp, leading past the *prætorium* or quarters of the general, has been laid bare. The roadway is 21 ft. wide, and contains several layers of surprisingly hard surface, pointing to years of occupancy on one hand, and the great skill of the Roman roadmakers on the other." This was the largest of the 20 Roman camps in Wales, and must have housed as many as 600 men.

About 8 acres were enclosed within the clay ramparts. The dimensions are approximately 660 by 600 ft. "The clay rampart had a revetment of stone, and the question arises whether this formed part of the original fortification or was a later embellishment." The stone used was red sandstone, probably brought from a quarry 20 miles away. The fort in turn has been used as a quarry by later generations "only one angle has been examined; there was no sign of a stone tower, but two 'post-holes' were found passing right through the clay bank into the subsoil, besides doubtful traces of a horizontal 'sleeper,' and these were thought to be part of the framing of a wooden angle-tower."

The roads within the fort, formed of river gravel, are easily traced. One runs through from west to east; north of this is a range of build-

ings, in the center of which stood the *prætorium*, measuring 100 Roman ft. from back to front. The back wall of the *prætorium* has been traced. A deep cellar or walled pit has been opened; probably this was the "strong-room" under the floor of the "Sanctuary of the Standards." "Large sums were deposited by the Roman soldiers in a savings bank, of which the standard-bearer of each corps was the treasurer; there could be no safer place than a vault under the regimental chapel, which was always situated in the inner court of the headquarters building."

This cellar also yielded a number of box-shaped flue-tiles and stone roofing slates. There is also a typical storehouse or granary with external buttresses, and a block with a frontage of 55 ft., lying west of the *prætorium*. "The latter promises to be rich in minor finds; the handle of a bronze strainer, of a type that occurs at Pompeii and pieces of delicate pillar-moulded glass have been found in it. The Samian pottery found here and elsewhere in the fort includes several I century pieces, but it would be premature at this stage to discuss the date of occupation." In this building west of the *prætorium* two large hypocaust-rooms have come to light. "The floor of one rested on pillars of square tiles, some of which bear a maker's stamp, C. I. C. F.; the floor of the other was supported by solid 'islands' of masonry, divided by radiating flues. The east gate has been located and the road traced through it." Three v-shaped ditches encircle the fort. Just beyond the ditches near the south gate, there was a considerable civil settlement, consisting of rude huts with clay floors, divided from one another by paved footpaths. This region yielded more pottery, especially fine Samian fragments. "A remarkably perfect boat-shaped basin, carved out of a log of oak, has been found at the bottom of a well. The lower part of the well was lined with a sort of basket, formed of hazel twigs woven round a series of stakes."



PERSIAN TOMB AT SUSA

Archæological discoveries are interesting in proportion as they shed light on the manners and customs of ages gone by, or corroborate the statements of writers of the time. The discoveries in tombs frequently furnish the data for the reconstruction of the life and beliefs of ancient peoples. In Persia little has been found outside the ruined palaces which reveals the religious and court life, leaving us to depend upon outside sources for our knowledge of the more ordinary conditions. Flavius Arrian, the chronicler of Alexander the Great, described the tomb of Cyrus in such terms that many have doubted his veracity until some recent minor excavations on the south side of the citadel mound at Susa revealed the remains of a burial corresponding in some particulars to his description. A small square building decorated with enameled bricks and evidently a small temple of the Mazdean rite was found. South of this was a heap of debris

with a number of enameled bricks in it. In this was a fine coffin of bronze, about 5 ft. 6 in. by 3 ft. There was no trace of a lid. Inside was a human skeleton in good preservation, accompanied by a number of objects of precious metal. Among them was a silver cup of rich design which lay on the left side of the body. It is a work of art in the best Assyrian style, resembling the bowl which the Queen of Assurbanipal holds in her hand in the sculpture of the garden scene in the British Museum. It is fluted and the bottom is decorated with an open-rose pattern.

Upon the skeleton lay jewelry just as the deceased wore it in life. Round the neck was a gold torque, decorated with gold bead work, while the clasp terminated in two lion heads. These heads are inlaid with turquoise eyes and lapis lazuli plaques, while collars of lapis lazuli and raised gold work divided them from the main portion of the torque. There were also two bracelets of solid gold, with lion-head terminals. The style is similar to that of the torques and bracelets of Assyrian Kings found at Nimrod. This set is much like the "Scythian treasure" found in Afghanistan, now in the British Museum. Round the neck was a beautiful necklace of 4 rows of beads. The beads are long, olive shaped, of amethyst, red and green jasper, lapis lazuli, emeralds, agate, and red and white coral, separated from each other by small gold cushion beads. At regular intervals are small pendants shaped like an unopened flower bud encrusted with jewels. Another interesting piece is a "dog collar" of 5 rows of pearls, about 200 in all. Near by were some gold charms, a lion, and a ram-headed sphinx.

Richly decorated buttons and a brooch such as was used to fasten a robe as well as a quantity of the fluff and dust from some very fine textile would indicate that the body was originally richly clothed.

The date is doubtful, but may have been the latter end of the reign of Artaxerxes II. In the coffin were two alabastron vases resembling those often found in Persia and Egypt and usually inscribed with the name of Artaxerxes II. These, however, were not inscribed. There were some coins struck at Arvad, bearing the image of the Saprat Melgart (B. C. 350-332).

The greatest importance of the find lies in the light thrown upon early Mazdean burial customs and on the accuracy of the statements of Arrian. The law of the Avesta prohibited both earth burial and cremation, leaving exposure in the air or in the "Towers of Silence" as the only methods of burial. By the use of a metal coffin contact with the earth was avoided, and the absence of a cover gave the exposure to the air. Alexander closed up the doorway to the tomb of Cyrus, and something similar must have been done to this tomb. As to the identity of the occupant, there is no clue, but the richness of the jewels would seem to indicate that this was some member of the royal family or a rich Persian official.

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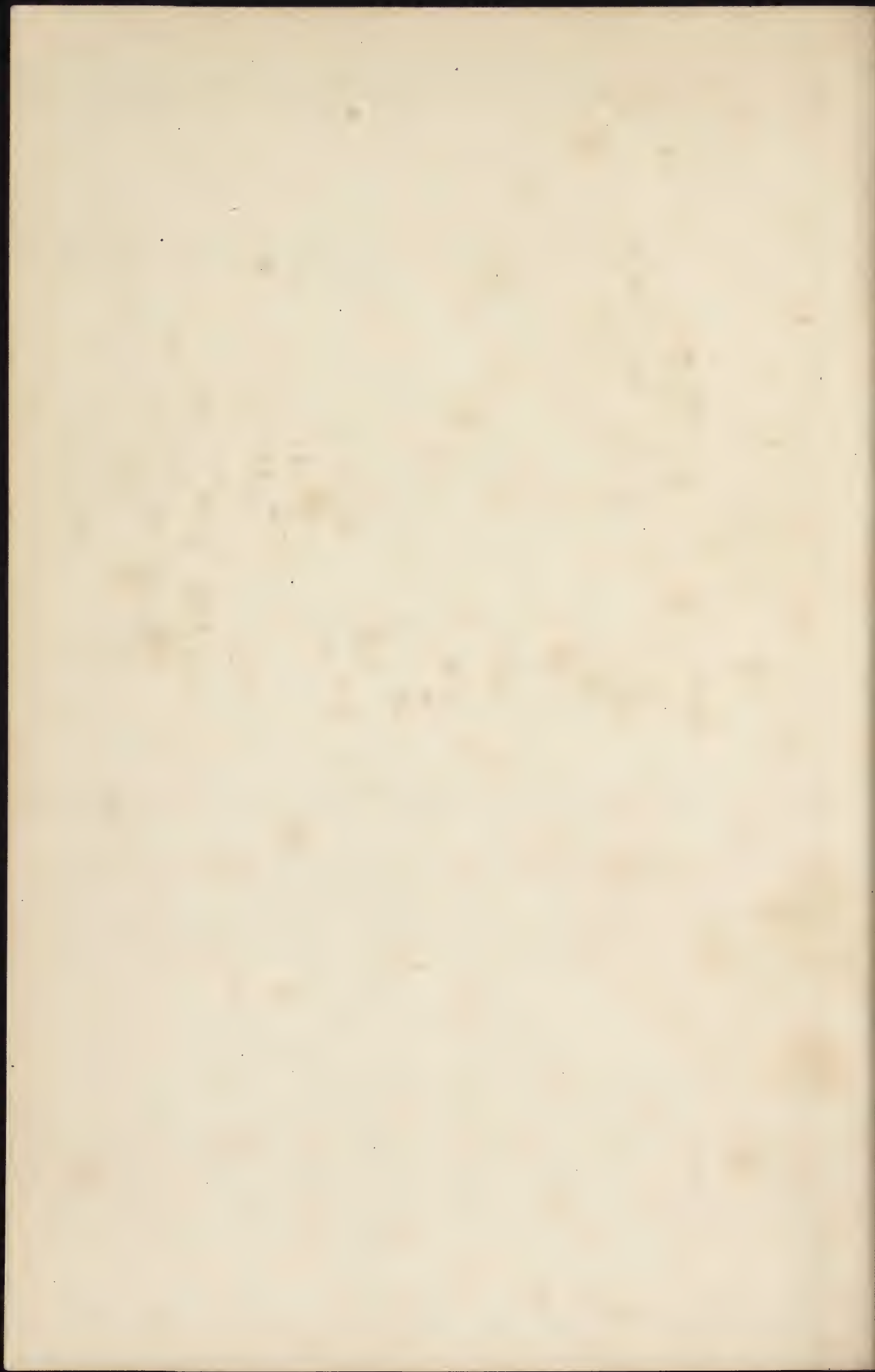
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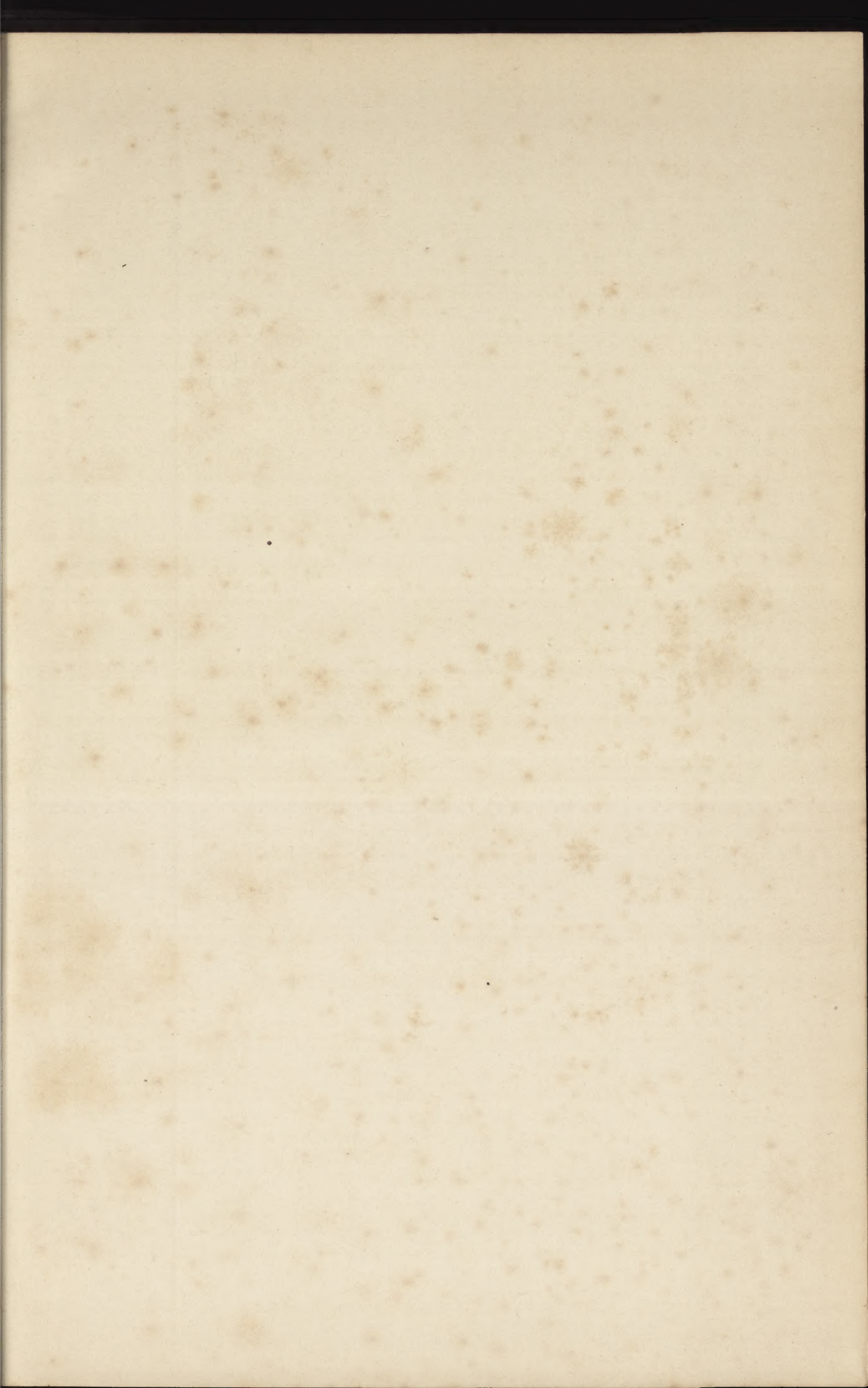
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